

CHAPTER 4.0

ENVIRONMENTAL ANALYSIS

This section describes the existing conditions of the project study area and the environmental impacts that would occur with implementation of the proposed project. The analysis of each environmental issue area includes a description of the existing conditions within the project study area; the criteria for determining significance; an evaluation of how the specific resources would be affected by implementation of the proposed project; program-level mitigation measures to reduce significant impacts; and residual impacts after mitigation.

CEQA requires a lead agency to determine the impacts of a proposed project based on the project's expected effects when compared to certain thresholds of significance. This EIR relies on the CEQA thresholds as shown in Appendix G of the CEQA Guidelines.

The study area analyzed in this document focuses on the relatively broad geography encompassed by the Master Plan Updates, as shown in *Figure 2-2*. The study area includes the locations where potential environmental impacts are anticipated and includes the footprints of each project component. Changes in the environment, as a result of the project, would be reflected within the study area. For certain environmental issue areas, including Biological Resources (*Section 4.3*) and Cultural Resources (*Section 4.4*), the area of potential effect encompasses areas extending beyond the project footprint to include ground-disturbing activities required for construction or operation of the project. For Transportation/Traffic (*Section 4.10*), the study area includes the adjacent streets that would be potentially affected by the proposed project.

The study area lies predominantly within the City of Carlsbad, with two of the project components occurring in adjacent jurisdictions (one each within the Cities of Oceanside and San Marcos). Refer to *Figure 2-1* for a vicinity map. The evaluation in *Chapter 4.0* is organized generally by the category of environmental effect anticipated by a certain project component, with the least impactful components described first.

Approach to Impact Analysis

The Water and Sewer Master Plan Updates include a total of 84 project components. As described in *Section 1.3*, the analysis contained in this Program EIR is considered to be a first-tier level of analysis for the Master Plan Updates. Impacts are summarized in *Tables S-1* and *S-2*. The data in these tables has several uses.

Primarily, *Tables S-1* and *S-2* are used to identify those components that would require additional CEQA review, and as described in *Section 1.3*, additional CEQA review could take the form of a Negative Declaration, Mitigated Negative Declaration, or EIR. Accordingly, *Tables S-1* and *S-2* also identify the project components that would not result in environmental effects as a result of construction or operation. These project components would not necessitate additional, second-tier (or project-level) environmental review, as their effects have been adequately assessed in this Program EIR.

Tables S-1 and *S-2* are designed to serve as a guide for the evaluation of each project component as it comes forward for approval or implementation. *Tables S-1* and *S-2* are based on known conditions and an evaluation of probable future conditions. Since future conditions may change, the first step in environmental review of future projects under this Program EIR should be to ascertain if future conditions are different from present assumptions, and to determine if environmental review has already been accomplished. For example, where pipelines are assumed in this Program EIR to be located in street rights-of-way, this first check should include affirming the assumption. Conditions evaluated at this stage for any change could include sizing, location, site disturbance, or other factors. If conditions are as assumed, City staff shall use the following procedure to establish mitigation on a project-specific basis for all issues where the potential for mitigation requirements is indicated.

- ! Each project shall be reviewed to determine if local environmental review has been carried out by the local land use jurisdiction as part of a project for which the local land use jurisdiction was the lead agency under CEQA.
- ! If local review was carried out under CEQA, the City will determine if that review for each issue was sufficient to meet the City's requirements. If so, further environmental review by the City shall not be required.
- ! If further environmental review by the City is required, the City shall review project plans to determine if there is a potential for the project to have a significant effect on the environment using the *Tables S-1* and *S-2* as a guide, but with the possibility of changed future conditions in mind.
- ! Where indicated, environmental review of subsequent projects with the potential for a significant effect or effects shall include the applicable studies, surveys, coordination, or other procedures specified in *Chapter 4* of this Program EIR.

Biological or cultural resource surveys or jurisdiction coordination for traffic issues, for instance, may be needed to establish project-specific conditions and mitigation measures.

- ! Where project-specific studies or other information indicate that significant effects would result and feasible mitigation be implemented to reduce the effect to a level below significance, a Mitigated Negative Declaration may be prepared for the project under review.
- ! If project-specific studies indicate that any significant effect would result that cannot be mitigated to a level below significance, a separate project-specific EIR shall be required to address any potential significant effects.

Refer to *Section 1.3* for more information on assessing first- and second-tier impacts of future projects.

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4.1 AESTHETICS

This section focuses on the components of the project which may produce visual impacts or affect visual character upon implementation. A brief description of visual resources is given followed by the visual impact analysis.

4.1.1 Existing Conditions

The City of Carlsbad is aesthetically characterized by a mixture of natural and urban landforms. The natural environment is made up of diverse landforms, rock outcrops, plants and animal resources, natural colors and hues and panoramic public views of the horizon, foothills, lagoons, and the Pacific Ocean. The natural scenic landscape includes rugged coastal bluffs, several expansive low lying coastal lagoons, and numerous valleys and small canyons surrounded by rolling foothills. The urban environment includes historic buildings, landscaping, signage/monuments, and works of art.

There is no dominant architectural theme throughout the City; however, there is a concentration of older Victorian style structures in the northwestern portion of the City and many Spanish and Western Ranch style buildings in the southeastern portion. The industrial portion of the City is characterized by large industrial parks nestled into the hills with a variety of glass/concrete office, manufacturing, and warehouse buildings.

The topography is also diverse. Along the coast, there are low sandy beaches and high coastal bluffs. From the coast to I-5, the land is relatively level, sloping upward to the east. East of I-5, the land becomes generally more hilly, with steeper slopes. The broad floodplains of the three lagoons within City boundaries (Buena Vista, Agua Hedionda, and Batiquitos) spread between hills on either side.

Throughout the City are water and sewer utilities facilities. Cylindrical steel or concrete water reservoirs are scattered through the City, and in the neighborhoods where they are located, many are familiar parts of the urban scene to residents. The largest aboveground facilities include the Encina WPCF near the coast along I-5, Maerke Dam in the eastern portion of the City, and Lake Calavera Reservoir to the northeast.

City of Carlsbad Scenic Corridor Guidelines

In 1988, the City prepared Scenic Corridor Guidelines to identify roadways and transportation routes within the City to be designated as scenic corridors, and to suggest

methods to preserve and enhance the character of those corridors (City of Carlsbad 1994). According to the City's *Circulation Element* (1994), Carlsbad has adopted four categories of scenic corridors. Transportation routes with potential corridor status are identified below; however, currently, El Camino Real is the only designated roadway within the City for which a set of development standards have been adopted.

Community Theme Corridors. These connect Carlsbad with adjacent municipalities and present the City of Carlsbad to persons entering and passing through the community. Community Theme Corridors include El Camino Real, Carlsbad Boulevard, Palomar Airport Road, La Costa Avenue, and Melrose Drive.

Community Scenic Corridors. These roadways interconnect major subareas of the present and planned Carlsbad community. They include College Boulevard, Cannon Road, Carlsbad Village Drive, Faraday Avenue, I-5, La Costa Avenue, Olivenhain Road/Rancho Santa Fe Road, and Poinsettia Lane/Carrillo Way.

Natural Open Space and Recreation Corridors. These offer spectacular views of waterscapes, landforms, wildlife, and the Pacific Ocean, and include Adams Street/Park Drive, Batiquitos Drive, and Jefferson Street (the portion adjacent to the Buena Vista Lagoon).

Railroad Corridor. This corridor presents the City to people passing through by rail, on the Atchison, Topeka, & Santa Fe (AT&SF) Railroad.

4.1.2 Significance Criteria

As stated in *Section 4.0*, the criteria for determining significance are based on Appendix G of the CEQA Guidelines. A significant aesthetic or visual resources impact would occur if the proposed project is determined to:

- ! Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a State scenic highway;
- ! Substantially degrade the existing visual character or quality of the site and its surroundings; or

- ! Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.1.3 Impact Analysis

Implementation of the majority of water and sewer components would require temporary disturbance of the project sites to access pipelines and components. Most projects are below-ground installations and would have no visual effect when completed in existing road rights-of-way. In addition, most of the project components are maintenance or improvement projects for existing facilities and property. The large majority of projects proposed under the Master Plans would not result in permanent visual effects.

Implementation of the project components would predominantly take place in public roadways, where visual disruption is likely to be noticeable. The potential construction-related visual impacts could result from grading, pavement removal, trenching, stockpiling of excavated soils, construction materials/equipment storage, and backfilling of trenches. Visual disturbance from construction is short term in nature, and the City has included commitments in the project design to restore road surfaces, in both public and private rights-of-way, to their pre-existing visual condition or better (refer to *Table 2-5*).

The water and sewer master plans include components that might be located outside existing road rights-of-way, or in landscaped areas or where there is native vegetation. In these cases, visual effects could be potentially significant unless vegetation that is removed is replaced, or in the case of natural areas, revegetated to blend with adjacent natural areas. The visual character of the project area and its surroundings would not be adversely affected once construction is completed and the disturbed surfaces are restored to pre-existing visual conditions. Also, some facilities will be designed as parts of private development projects in the development plans subject to City review. In those cases, environmental review of the facilities may be conducted as part of the overall CEQA review of project plans by the City.

The modifications proposed to various PRS and PS facilities in the Water Master Plan would involve short-term rehabilitation and upgrade activities. Similar to construction activities on the underground pipeline segments, visual impacts would be short-term and would not result in long-term significant effects to visual resources.

New PRS facilities are not anticipated to result in significant visual effects, largely due to the small size of these facilities (approximately 10 by 12 feet), and proposed location within existing urban environments. In addition, it is possible that these facilities could be placed underground, which would be determined at the project level of review, thereby totally reducing any long-term visual effect.

The new 15 million gallon storage tank to be sited adjacent to the existing Maerkle Reservoir (component 28) is proposed to be buried. Adjacent residential areas in the Ocean Hills community within the City of Oceanside and community south of Shadowridge Drive in the City of Vista would be exposed to the visual impacts of construction, but once construction is complete, no long-term visual impact would result since this component would be underground. Also in that area would be component 29, which is the proposed capacity improvements to the existing Maerkle Reservoir PS. Because the PS is existing, the incorporation of additional facilities at that site to implement the capacity increase is not expected to result in a new land use in the area, and would be visually consistent with the utilitarian appearance of the reservoir and PS. Impacts would be less than significant.

Similarly, the new PS proposed at the southeast intersection of El Camino Real and Palomar Airport Road (component 20) would not result in significant visual effects. This project would include three pumps and would be roughly 15 by 20 feet in size. Because PS facilities typically resemble ordinary buildings, even very large pump stations, once constructed, usually are unremarkable features in the landscape for most viewers. Along public roads, many motorists and area residents may pass them several times daily and remain unaware of their presence. Given the lack of adjacent sensitive receptors and suburban nature of this large, busy intersection, it is not anticipated that construction of the PS at this location would result in a significant visual effect. Nonetheless, the PS appearance can be enhanced by exterior treatment and landscaping, as identified as a project design feature in *Table 2-5*.

Component 33 involves improvements to the existing reservoir at Lake Calavera. The project would replace outlet tower valves and piping, and re-grade the bottom of the reservoir. The re-grading of the reservoir bottom would result in short-term visual effects during construction only, and the replacement of existing features is not expected to result in a significant visual effect. Impacts would be less than significant.

The removal of the 10 lift stations as part of the Sewer Master Plan Update would involve short-term demolition activity, but once complete, the effect of removing these

aboveground infrastructure facilities would be a visual benefit. Improvement projects at 8 sewer lift stations would consist of short-term construction activities that, once complete, would not result in significant visual impacts. Slightly relocating the existing Agua Hedionda Lift Station (component 32) would not result in significant visual impacts since the project would be located within the existing property boundary and would be similar in nature to the existing facility.

There are no State scenic highways in the project study area (Caltrans 2003); therefore, no impacts would occur. Although the City has its own Scenic Corridor Guidelines, it is anticipated that due to the nature of the project, motorists would not be able to view project construction for any substantial length of time. Any project-related lighting would be short-term and would not remain after the construction period. New light sources associated with the project would be regulated by local ordinance and are not expected to result in an intrusion to the surrounding area. Surface coatings and materials applied to all new structures are not anticipated to result in substantial glare impacts.

Although some of the aboveground projects would be located near scenic vistas in the City, these facilities would be designed to protect those vistas (as described in *Table 2-1*) such as the use of vegetative screens, fencing, and paint. In some locations where sensitive vistas would be affected, the City has taken additional measures in the past to reduce aesthetic effects. These included incorporating additional design considerations and structural improvements, such as designing lift stations to look like a home rather than an industrial facility. The City would continue to investigate alternative visual buffering and design features to reduce significant impacts on a case-by-case basis. Consequently, the large majority of project components would not result in significant long-term visual impacts.

One aboveground project, proposed in the Water Master Plan, has the potential to result in a higher level of visual effects. The visual effect of aboveground structures is dependent on the visibility of the project site; the degree of landform alteration required to implement the project; the size, bulk, color, and prominence of the structure; the number and proximity of viewers; and the landscaping, screening, or enclosures used to mask visually undesirable features.

Installation of the new water storage tank (component 27) would result in the introduction of a new aboveground feature into the visual landscape. Typically, reservoirs must be of imposing bulk to hold the volume of water required. Reservoirs

are most often cylindrical steel structures, and are situated higher in elevation than most of the surrounding landscape and development, which increases their visibility. While reservoirs can be highly visible features, viewer reactions to them are often mixed. Reservoirs are familiar features of the landscape in almost all urban, suburban, semi-rural, and rural parts of San Diego County and many residents of Carlsbad are familiar with these structures near their homes. As such, their presence in the landscape is familiar. For some viewers, however, they are perceived as intrusive, utilitarian elements at odds with the rest of the visual landscape.

Component 27 would be visible from adjacent sensitive receptors, particularly the residential areas stemming from Corte Orchidia and Black Rail Road (Encantata). This tank would be approximately 175 feet in diameter, 56 feet high, and would be the fourth tank at that facility. The proposed tank would be the same size as the three existing tanks, approximately 8.5 million gallons. As such, there would not be a new land use being introduced to the site. Additionally, as is the case with the existing tanks, vegetative screening would be incorporated into the project, as would using fencing or walls, which would help soften the appearance of the new facility. Overall, visual impacts resulting from component 27 would be less than significant.

4.1.4 Mitigation Measures

No significant aesthetic effects have been identified; no mitigation measures are necessary.

4.1.5 Residual Impacts After Mitigation

There are no residual visual impacts.

4.2 AIR QUALITY

The primary focus of this section is to outline existing air quality conditions, plans and guidelines regulating the quality of air and how the proposed project may impact existing and future air quality conditions within northern San Diego County. Regulatory authority for air quality in San Diego County exists at the federal, state, and local levels and includes the Federal Environmental Protection Agency (EPA); the California Air Resources Board (ARB); the San Diego Air Pollution Control District (APCD); and the San Diego Association of Governments (SANDAG). SANDAG, comprised of City and County governments, has only advisory authority. However, SANDAG has the primary responsibility to provide long-range, regional growth and transportation planning and to include air quality considerations in its planning efforts. The EPA has overall authority for maintaining and improving the nation's air quality as mandated by the Federal Clean Air Act of 1970. Since enactment of the Act in 1970, a series of federal and state legislation has been enacted to enhance the quality of air. As a result of this legislation, federal and state pollutant concentration standards have been derived. These standards are designed to protect those people most susceptible to respiratory stress (known as sensitive receptors).

Also as a result of the legislation, air quality management districts have been established to measure pollutant concentrations in their air basins and monitor their conformance with federal and state standards. If an air basin does not meet the established air quality standards, the responsible air quality district must prepare an air quality plan to show how the standards will be attained. The San Diego Air Basin (SDAB) is classified as a "serious" non-attainment area for both federal and state standards for ozone (smog). The SDAB also exceeds the state standard for airborne particulate matter PM₁₀. Management of the air quality in the SDAB is under the authority of the APCD. The APCD has prepared a Regional Air Quality Strategy (RAQS) to comply with state and federal legislation and to attempt to address attainment of both state and federal air quality standards.

National Ambient Air Quality Standards (NAAQS) were established in 1971 for six pollution sources. States have the option to add other pollutants, require more stringent compliance or to include different exposure periods. Those standards currently in effect in California are shown in *Table 4.2-1*.

**TABLE 4.2-1
AMBIENT AIR QUALITY STANDARDS**

CALIFORNIA STANDARDS			FEDERAL STANDARDS	
POLLUTANT	CONCENTRATION	AVERAGING TIME	CONCENTRATION	AVERAGING TIME
Ozone (O ₃)	0.09 ppm	1 hour average >	0.12 ppm	> 1 hour average
Carbon Monoxide (CO)	20.00 ppm	1 hour average >	35.00 ppm	1 hour average >
	9.00 ppm	8 hour average >	9.00 ppm	8 hour average >
Nitrogen Dioxide (NO ₂)	0.25 ppm	1 hour average >	0.053 ppm	annual average >
Sulfur Dioxide (SO ₂)	0.25 ppm	1 hour average >	0.03 ppm	annual average >
	0.04 ppm	24 hour average >	0.14 ppm	24 hour average >
Suspended Particulate Matter (PM ₁₀)	50 ug/m ³	24 hour average >	150 ug/m ³	24 hour average >
	30 ug/m ³	annual geometric mean >	-----	annual arithmetic mean >
Sulfates	25 ug/m ³	24 hour average >=	-----	---
Lead	1.5 ug/m ³	30 day average >=	1.5 ug/m ³	calendar quarter >
Visibility Reducing Particulates	In sufficient amount to reduce the visual range to less than 10 miles at relative humidity less than 70 percent, 8-hour average (10 am-6 pm)		----	----

Source: Table 20.1-7, California and National Ambient Air Quality Standards (www.sdapcd.co.san-diego.ca.us).

Sources of Pollution. Nitrogen oxides (NO_x) and reactive organic gases (ROG) are the two precursors to photochemical smog formation. In San Diego County, ROG and NO_x are largely emitted from mobile (cars, ships, planes, heavy equipment, etc.) sources (San Diego Air Pollution Control District, 1999).

Air Quality Management Planning. Due to the existing air quality in San Diego, more specifically the exceedance of baseline pollutant levels, the APCD is required to develop measures for which pollution control will occur. These measures and several other components of the attainment process are contained in the regional air quality management plan developed jointly by the APCD and SANDAG. Several regional air quality plans have been adopted throughout the 1980s and 1990s under the title Regional Air Quality Strategies (RAQS). Modifications, improvements and updates to earlier RAQS have resulted in the 1998 version of this report.

In 1988, the California Legislature enacted the California Clean Air Act (CCAA). The

CCAA requires that each air quality region complete a clean air plan to address compliance with state standards as well as their less stringent federal partners. A basin plan was therefore developed and adopted in 1991 that predicted attainment of all national standards by the end of 1997 from pollution sources within the air basin.

A plan to meet the federal standards for ozone was developed in 1994 through an update of the 1991 State Plan. This local plan was combined with those from all other California non-attainment areas with serious (or worse) ozone problems to create the California State Implementation Plan (SIP). The SIP was adopted by the ARB in late 1994 and EPA in mid-1996. In 1999, the SDAB was downgraded from the list of regions suffering from a “severe” ozone problem to a “serious” ozone problem.

The proposed project relates to the SIP and/or RAQS through the land use and growth assumptions that are incorporated into the air quality planning document. These growth assumptions are based on each city’s and the County’s general plan. If a proposed project is consistent with its applicable General Plan, then the project presumably has been anticipated with the regional air quality planning process. Such consistency would ensure that the project would not have an adverse regional air quality impact.

The proposed Water and Sewer Master Plans relate only minimally to the RAQS. Emissions from the project are almost entirely exclusive to construction. Except for control of construction dust relating to PM₁₀ production, there are no measures in the RAQS that relate directly to the proposed project. The RAQS for SDAB do not specify significance thresholds for air pollutants generated during construction. Therefore, this analysis uses guidelines published in the South Coast Air Quality Management District (SCAQMD) *CEQA Air Quality Handbook*. The proposed project would contribute emissions of PM₁₀ from construction-related dust, and emissions of CO and NO_x from diesel-powered equipment.

4.2.1 Existing Conditions

The study area, encompassing parts of the City of Carlsbad, and minor parts of the Cities of Oceanside, and San Marcos, is located within the SDAB, and enjoys a Mediterranean climate characterized by warm, dry summers, mild winters, and infrequent rainfall. The principal climatic features include the Pacific semi-permanent subtropical ridge with a shallow marine layer and pronounced low-level inversion, along with the cool California current that moderates temperature variations. Air quality within the basin generally rates from fair to poor. Dispersion of air pollutants is relatively limited, owing to low

mixing heights, low-level temperature inversions, and light wind speeds. Local air quality within the study area is degraded by subsidence and radiation inversions. Subsidence inversions occur during the summer months as descending air associated with the Pacific High pressure cell contacts cool marine air. The boundary between the two air layers represents a temperature inversion which traps pollutants. The radiation inversion develops on winter nights when air near the ground cools by heat radiation and air aloft remains warm. The shallow inversion layer between these two air masses can trap vehicular pollutants such as carbon monoxide and oxides of nitrogen. As this air layer moves eastward it becomes progressively more polluted. This situation is further complicated as trapped hydrocarbons (mobile source emissions) and oxides of nitrogen (stationary and mobile source emissions) react in the presence of sunlight to form photo-chemical smog.

Local sources of air pollutants are mostly related to transportation, with vehicular emissions being the primary concern. The APCD currently maintains monitoring stations in Oceanside and Escondido. Historical records from these stations show that the level of ozone pollution in the region periodically exceed federal standards. As a whole, the SDAB has been designated as a “non-attainment area” for air pollutants such as ozone, suspended particulates, and reactive hydrocarbons. The ambient air quality summary for the period of 1996-2000 is shown in *Table 4-2.2*.

4.2.2 Significance Criteria

Thresholds for determining significance is based upon Appendix G of the CEQA Guidelines. A significant air quality impact would occur if the proposed project is determined to:

- ! Conflict with or obstruct implementation of the applicable air quality plan;
- ! Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- ! Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- ! Expose sensitive receptors to substantial pollutant concentrations; or

- ! Create objectionable odors affecting a substantial number of people.

TABLE 4.2-2
AMBIENT AIR QUALITY SUMMARY
ESCONDIDO AND OCEANSIDE MONITORING STATIONS 1996-2000

YEAR/ LOCATI ON	CARBON MONOXIDE (CO) ¹		OZONE (O ₃) ²		SUSPENDED PARTICULATE MATTER (PM ₁₀) ³	
	MAXIMUM 8-HOUR CONCENTRA TION (PPM)	DAYS STATE STANDAR D EXCEEDE D	MAXIMUM 1-HOUR CONCENTRA TION (PPM)	DAYS STATE STANDARD EXCEEDED	MAXIMUM 24-HOUR CONCENTRAT ION (UG/M ³)	DAYS (% OF SAMPLES) STATE STANDARD EXCEEDED ³
1996						
Escondid o	7.1	0	0.120	12	53	Unknown
Oceansid e	2.6	0	0.110	4	62	Unknown
1997						
Escondid o	4.9	0	0.110	5	63	Unknown
Oceansid e	2.9	0	0.110	6	50	Unknown
1998						
Escondid o	4.5	0	0.120	9	51	Unknown
Oceansid e	2.3	0	0.110	3	37	Unknown
1999						
Escondid o	5.3	0	0.104	1	60	Unknown
Oceansid e	2.0	0	0.091	0	---	---
2000						
Escondid o	4.9	0	0.124	6	65	Unknown
Oceansid e	---	---	0.095	1	---	---

The criteria states that where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the significance determinations. For criteria pollutant thresholds, the guidelines and thresholds used by the SCAQMD apply.

Thresholds for Construction Emissions

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD's *CEQA Air Quality Handbook*. The following CEQA significance thresholds for construction emissions have been established by the SCAQMD:

- ! 2.5 tons per quarter or 75 pounds per day of ROC
- ! 2.5 tons per quarter or 100 pounds per day of NO_x
- ! 24.75 tons per quarter or 550 pounds per day of CO
- ! 6.75 tons per quarter or 150 pounds per day of PM₁₀
- ! 6.75 tons per quarter or 150 pounds per day of Sulfur Oxides (SO_x)

Projects in the basin with construction related emissions that exceed these emission thresholds could have significant impacts.

Thresholds for Operational Emissions

Emissions Thresholds for Regional Criteria Pollutants

- ! 55 pounds per day of ROC
- ! 55 pounds per day of NO_x
- ! 550 pounds per day of CO
- ! 150 pounds per day of PM₁₀
- ! 150 pounds per day of SO_x

Projects in the basin with operation related emissions that exceed these emission thresholds could have significant impacts.

Standards for Localized Criteria Pollutants

- ! California State one hour CO standard of 20.0 ppm
- ! California State eight hour CO standard of 9.0 ppm

The significance of localized project impacts depends on whether ambient CO levels in the vicinity of the project are above or below state and federal CO standards. If ambient levels are below the standards, a project is considered to have significant impacts if

project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase one hour CO concentrations by 1.0 ppm or more or eight hour CO concentrations by 0.45 ppm or more.

4.2.3 Impact Analysis

Consistency with Air Quality Plans

Section 15125(B) of the CEQA Guidelines contains specific reference to the need to evaluate any inconsistencies between the proposed project and the applicable air quality management plan. Transportation Control Measures (TCMs) are part of the RAQS. The RAQS and TCM plan set forth the steps needed to accomplish attainment of state and federal ambient air quality standards. The California ARB provides criteria for determining whether a project conforms with the RAQS which include the following:

- ! Is a regional air quality plan being implemented in the project area?
- ! Is the project consistent with the growth assumptions in the regional air quality plan?

The project area is located in the San Diego Air Basin, and as such, is located in an area where a RAQS is being implemented. The project is consistent with the growth assumptions of the City's General Plan and the RAQS. Also, all CMWD and CSD facilities are subject to and designed to conform with APCD Rules and Regulations governing stationary and mobile sources. Because the Master Plans have been formulated on the basis of local land use planning and regional growth and population forecasts, and because all facilities proposed are subject to regional air pollution control measures, the Master Plans are consistent with regional plans to improve and maintain air quality. Therefore, the project is consistent with the regional air quality plan and will in no way conflict or obstruct implementation of the regional plan.

Air Quality Standards

Air quality impacts will result primarily from short-term construction activities, emissions from vehicles used by the sanitation districts' employees, and the operation of other power-consuming city facilities. Standard equipment used for the rehabilitation and replacement of pipelines can include dozers, rollers, dewatering pumps, backhoes,

loaders, delivery and haul trucks, and other equipment. The equipment to be found at any one time on a given construction site varies with the type of project.

Short-term impacts will also result from dust generated by surface disturbance to construct the project. Such dust potentially will be a soiling nuisance to parked cars, landscaping/ vegetation or other surfaces. Heavy equipment (mainly diesel-powered) will generate exhaust emissions from on-site activity and hauling of excess dirt offsite, pipe and other construction materials. These impacts are generic to pipeline construction and construction of related facilities. A discussion of these impacts is provided below. All other impacts associated with construction, relative to combustion emissions and fugitive dust, would also be applicable to the project.

Fugitive Dust

The California ARB estimates that each acre under construction disturbance generates about 100 pounds of total suspended particulates (TSP) or dust per day, if no dust control measures are implemented. Dust control measures, such as frequent watering and periodic street washing near construction access, as required by San Diego APCD rules and City of Carlsbad code requirements, can reduce the dust generation rate by approximately 50 percent. The PM_{10} fraction for TSP is typically less than half. For purposes of this analysis, a one-acre disturbance site was presumed to generate 30 pounds of TSP and 25 pounds of PM_{10} when the site is under active disturbance when “standard” dust control measures are utilized.

During construction, it was determined that the active disturbance area on any given day would be no more than approximately 200 feet by 30 feet at any given site, or 0.14 acre. Daily regional PM_{10} emissions would be approximately 3.5 pounds per day for each area of construction. Even if multiple segments were under construction, the PM_{10} emissions would still be substantially less than the significance threshold of 150 pounds per day.

PM_{10} emissions resulting from project construction would therefore be considered less than significant. However, the PM_{10} levels in the SDAB are above the state standard; therefore, while PM_{10} emissions during construction are short-term and less than significant, measures are required to minimize the generation of airborne dust to the maximum extent feasible. These measures, including the application of dust control agents and the use of tarps on soil hauling vehicles, have been incorporated into the project by design, as shown in *Table 2-5*. No further measures would be required.

Dust deposited on parked cars, outdoor furniture or other exposed surfaces from

construction related activities including the hauling of excavated materials from the site may create a soiling nuisance. EPA studies have shown that the zone of impact for heavy soiling nuisance extends 50 feet or less from the activity (EPA 1995). Where construction occurs within 50 feet of sensitive receptors, soiling nuisance would occur. Project design features included in *Table 2-5*, such as halting grading operations during periods of high winds, would ensure that effects would be less than significant. No additional measures would be required.

Combustion Emissions

Equipment exhaust emissions are negligible due to the limited equipment necessary to complete the proposed construction. Exhaust from construction activities would not result in substantial concentrations of pollutants, either locally or regionally.

Total daily construction activity impacts from equipment exhaust and fugitive dust cannot be specifically calculated at this program-level of analysis; however, given the type of project, it is likely that impacts would not exceed identified significance thresholds, and would be less than significant. However, the O_3 and PM_{10} levels in the SDAB are above national and state AAQS; therefore, while combustion emissions during construction are short-term and less than significant, project design features have been incorporated into the project to reduce effects to the extent feasible (*Table 2-5*). No additional measures would be necessary.

Additional concerns during construction include traffic delays that may occur as a result of construction vehicles interfering with existing traffic flow, and potential truck queuing near sensitive receptors. Detours, delays and congestion from potential lane closures or slow moving vehicles may cause vehicular emissions of CO and ROG to increase. With an effective traffic control plan (as described in *Table 2-5* and *Sections 2.3 and 4.10* of this EIR) air quality impacts would be maintained at a level below significance (see *Section 4.2.4 below*).

With implementation of the required dust abatement and exhaust pollution minimization measures found in the project design features (see *Table 2-5*), emissions associated with project implementation will be further reduced to a level below significant. Implementation of these measures will reduce project-related emissions to a level below significant by controlling construction-generated respirable particulate matter (PM_{10}) through dust abatement procedures and controlling construction-generated O_3 and NO_x through proper maintenance of construction vehicles and traffic/construction vehicle management.

Long-term emissions associated with travel to and from the project will be minimal. Although air pollutant emissions would be associated with the project, they would neither result in the violation of any air quality standard (comprising only an incremental contribution to overall air basin quality readings), nor contribute substantially to an existing or projected air quality violation.

Non-attainment Pollutants

The air basin is currently in a non-attainment zone for ozone and suspended fine particulates. The proposed project would represent a contribution to a cumulatively considerable potential net increase in emissions throughout the air basin. As described above, however, emissions associated with the proposed project would be minimal. As supported by the preceding discussions, given the limited emissions potentially associated with the proposed project, air quality would be essentially the same whether or not the proposed project is implemented. The proposed project's contribution to the cumulative impact is not meaningful, and impacts would be less than significant.

Sensitive Receptors

As noted above, the proposed project would not result in substantial pollutant emissions or concentrations. While sensitive receptors (e.g., schools or hospitals) exist in the vicinity of most of the project components, project design features to limit emissions and dust would help to maintain impacts at less than significant levels.

Odor

The construction of the proposed project could generate fumes from the operation of construction equipment, which may be considered objectionable by some people. Such exposure would be short-term or transient. In addition, the number of people exposed to such transient impacts is not considered substantial, and odor impacts during construction of the project components would be less than significant.

The proposed underground water and sewer lines and improvements include few above ground structures. Manholes are proposed in several project components. The manholes would be sealed and opened only for maintenance or service to the line; therefore, potential odors would be minimized, and effects would not be significant.

Other aboveground structures that can typically result in odor emissions are sewer lift

stations, which are vented to the atmosphere. Two existing sewer components, numbers 1 and 12, currently emit odorous levels of hydrogen sulfide gas, resulting in complaints from adjacent sensitive receptors. The proposed projects would include facilities to ameliorate the odor issues by installing an activated carbon adsorption odor control system. Also, odor control measures would be included in all sewer lift station projects. Odor impacts are not expected to be offensive to a substantial number of people, and would be less than significant.

4.2.4 Mitigation Measures

No significant air quality impacts were identified.

4.2.5 Residual Impact After Mitigation

Residual impacts to air quality would be less than significant.

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4.3 BIOLOGICAL RESOURCES

The project study area encompasses much of the incorporated City of Carlsbad as well as two outlying areas and as such includes areas containing varying types of biological resources. The evaluation of potential impacts of implementation of the proposed project components on those biological resources has been made utilizing existing resource databases and knowledge of design requirements and construction methods. The following discussion includes a description of the methodology of analysis, the results, and conclusions in terms of potential impacts, analysis of significance, and proposed mitigation. The description of existing biological resources is largely based on information in the Carlsbad Habitat Management Plan (HMP) (City of Carlsbad 1999).

Resources consulted in the analysis of potential biological resource impacts include vegetation community mapping provided by the City of Carlsbad (Carlsbad 1998), sensitive species data occurrence provided by California Department of Fish and Game (CDFG 2002) and San Diego Association of Governments (SANDAG 2002), and reserve planning information provided from the Carlsbad HMP. No field verification was conducted as part of this analysis.

4.3.1 Existing Conditions

Carlsbad is situated along the Pacific Coast in northern San Diego County, California. The coastal portions of Carlsbad are largely developed; however, natural vegetation communities remain in and around the three coastal lagoons and on some of the higher, steeper-sloped, inland portions of the City.

Vegetation Communities

Natural vegetation communities cover approximately 8,758 acres (36% of the City's total area). The remainder of the City is agricultural lands (approximately 1,812 acres), disturbed lands (approximately 1,251 acres) or developed lands (approximately 12,749 acres). *Figure 4.3-1* illustrates the distribution of vegetation types.

Natural communities present within the project area include the following general types: grassland, sage scrub, chaparral, woodland, riparian, marsh, and other wetland types. Below is a brief description of each.

Grassland

Both native and non-native grasslands occur within the City, occupying approximately 1,807 acres within Carlsbad. Native grassland is characterized by perennial bunch grasses such as needlegrass (*Nassella* spp.) and herbaceous annuals and perennials. This habitat type is often associated with clay soils and frequently occurs as open patches within coastal sage scrub.

Non-native grassland is characterized by non-native grasses such as wild oats (*Avena* spp.), bromes (*Bromus* spp.), and others (e.g., *Gastridium ventricosum*, *Vulpia* spp.). Other species present in this habitat type include telegraph weed (*Heterotheca grandiflora*), fascicled tarweed (*Deinandra fasciculata*), doveweed (*Eremocarpus setigerus*), Russian-thistle (*Salsola tragus*), black mustard (*Brassica nigra*), and tocalote (*Centaurea melitensis*). Non-native grassland is not considered a sensitive habitat; however, in a few locations it may be a significant resource for raptor foraging, may support sensitive plant species, and may serve as a habitat linkage.

Sage Scrub

Sage scrub types within Carlsbad include maritime succulent scrub, Diegan coastal sage scrub, and coastal sage scrub-chaparral scrub. Approximately 3,315 acres of sage scrub exist within the City.

Maritime succulent scrub includes a variety of succulents, such as fish-hook cactus (*Mammillaria dioica*), coast cholla (*Opuntia prolifera*), shore cactus (*Opuntia littoralis*), California desert thorn (*Lycium californicum*), cliff-spurge (*Euphorbia misera*), bladder-pod (*Isomeris arborea*), and several species of dudleya (*Dudleya* spp.), mixed with typical Diegan sage scrub species.

Diegan coastal sage scrub is a drought-deciduous community comprised of aromatic shrubs and subshrubs with a diverse understory of annual and perennial herbs, perennial and annual grasses, and grass-like plants. It occurs primarily on dry south-facing slopes and hillsides or on clay-rich soils adjacent to chaparral or upslope from riparian woodlands. Carlsbad, the largest remaining tracts of Diegan coastal sage scrub are found in the vicinity of Lake Calavera, southeast of Agua Hedionda Lagoon, and near Rancho Santa Fe Road.

Coastal sage scrub-chaparral scrub is a transitional community between coastal sage scrub

and chaparral types.

Figure 4.3-1

11 x 17 color

Figure 4.3-1
11x17 color backup

Chaparral

Chaparral habitat in the City has been grouped into two categories: undifferentiated (including southern mixed and chamise chaparral) and southern maritime chaparral. There are approximately 989 acres of undifferentiated chaparral in Carlsbad.

Southern mixed chaparral is a fire- and drought-adapted community composed of a variety of woody shrubs, many of which are "stump sprouters" that regenerate rapidly from underground undamaged tissues following fires or other ecological perturbation. It is a heterogeneous community type (i.e., the dominant shrubs vary from site to site). Chamise chaparral is a community where chamise is the overwhelming dominant plant. These chaparral types have a patchy distribution throughout the City, occurring on more mesic north- and west-facing slopes, alternating with coastal sage scrub, grasslands, and oak woodlands.

Southern maritime chaparral is similar to southern mixed chaparral but occurs on sandstone. It is the most limited chaparral type in distribution, particularly in Carlsbad, and is characterized by several endemic shrubs, including Del Mar manzanita (*Arctostaphylos glandulosa* ssp. *crassifolia*), wart-stemmed ceanothus (*Ceanothus verrucosus*), coast spice bush (*Cneoridium dumosum*), and Nuttall's scrub oak. In Carlsbad, the major stands of southern maritime chaparral are located northeast of the junction of Palomar Airport Road and El Camino Real; east and west of El Camino Real between Palomar Airport Road and Alga Road; slopes above Green Valley; and east and west of El Camino Real between La Costa Avenue and Olivenhain Road.

Woodland

Two woodland types occur in the City: oak woodland and eucalyptus woodland. There are approximately 29 acres of oak woodland and 257 acres of eucalyptus woodland in Carlsbad.

Oak woodland, as discussed here, is dominated by coast live oak (*Quercus agrifolia*), with scattered individuals of other tree species.

Eucalyptus woodland is a non-native community. It is dominated by various species of planted eucalyptus (*Eucalyptus* spp.) that survived around old dwellings or in entire groves (e.g., the Hosp Grove). Although this habitat supports no sensitive plant or wildlife species, it is often used for nesting by raptors and other birds or roosting by bats.

Riparian

Riparian types within the City include riparian scrub, riparian woodland, and riparian forest. Riparian habitats are considered sensitive under federal and state wetlands regulations and policies. There are approximately 572 acres of riparian habitat in Carlsbad.

As used herein, riparian scrub includes several natural and semi-disturbed wetlands communities, including mule fat scrub, southern willow scrub, and baccharis/tamarisk scrub. These communities occur along river courses and seasonally moist drainages. Characteristic areas of riparian scrub occur: along El Camino Real south of Batiquitos Lagoon; extending east from the mudflats at the eastern end of Agua Hedionda Lagoon (e.g., Macario Canyon); and along the northern portion of the City south of Highway 78 in Buena Vista Creek.

As used herein, riparian woodland includes sycamore-alder riparian woodland and other riparian woodland. Sycamore-alder woodland is an open to moderately closed, winter deciduous, broadleafed riparian woodland, dominated by well-spaced western sycamore (*Plantanus racemosa*). Sycamore-alder woodland is uncommon, occurring primarily in the Sunny Creek area and along a narrow drainage south of Lake Calavera.

Riparian forest, as discussed here, includes southern coast live oak riparian forest. This type is dominated by coast live oak, with scattered individuals of other tree species, such as western sycamore (*Platanus racemosa*), willow (*Salix* spp.), and Mexican elderberry (*Sambucus mexicanus*).

Marsh

Marsh and wetland habitats in Carlsbad include southern coastal salt marsh, freshwater marsh, the unvegetated mud flats and open water areas of estuaries, and several other aquatic habitat types. All marsh habitats are considered sensitive and are regulated under federal and state regulations and policies. There are approximately 1,466 acres of marsh habitats within the City.

Southern coastal salt marsh is a wetland community that develops in low, flat estuaries at the mouths of rivers and streams. Tidal inundation or excessive evaporation results in highly saline conditions around the margins of lagoons, and it is under these conditions that salt marshes develop. Within Carlsbad, salt marsh habitat is present surrounding

portions of Batiquitos Lagoon and Agua Hedionda Lagoon. The habitat type also occurs in limited amounts around Buena Vista Lagoon.

Freshwater marsh occurs in drainages, seepages, and other perennially moist low places. This community is characterized by perennial, emergent monocots 2-3 m (6-10 feet) tall, such as cattails (*Typha* spp.) Patches of this habitat are present at the upper ends of Buena Vista, Agua Hedionda, and Batiquitos lagoons, where a mixture of plants of salt and freshwater habitats is encountered. Smaller freshwater marshes grow around the perimeter of Lake Calavera and within riparian scrub communities.

Other Wetlands Types

Other wetland and aquatic types include disturbed wetland, estuaries, freshwater/open water, vernal pools and cismontane alkali marsh.

Disturbed wetland is not a native plant community. It typically occurs where the natural wetland vegetation has been degraded by mechanical activities or invaded by weedy, nonnative species.

Estuarine habitat consists of a semi-enclosed body of water that has a free connection with the open ocean and within which seawater is measurably diluted with fresh water derived from land drainage. This aquatic habitat lacks vascular vegetation and includes lakes, ponds, and reservoirs. Excluding the three major coastal lagoons (Batiquitos, Agua Hedionda, and Buena Vista), the largest open water area in the City is Lake Calavera. There also are a number of smaller natural or artificial ponds throughout the City.

Vernal pools are a highly restricted, unique wetland habitat type that contains high numbers of endangered, sensitive, and endemic plant and animal species. This type occurs in several scattered locations throughout the City on marine terraces.

Areas in Carlsbad classified as cismontane or alkali marsh are typically disturbed riparian freshwater marsh that have changed in vegetative character due to agriculture or other disturbance. Plant species found in these locations are often those associated with salt marsh, as well as exotic or weedy species. Areas of cismontane alkali marsh along portions of Encinitas Creek and in the vicinity of natural springs and seeps.

Sensitive Plant Species

A variety of sensitive plant species occur within the study area. Below is a brief description of the most commonly occurring species.

San Diego Thorn-mint (Acanthomintha ilicifolia)

San Diego thorn-mint is federally threatened and state endangered and is restricted to distribution to San Diego County and northern Baja California, Mexico (CNPS 2001; USFWS 1995). In San Diego County, the species is known from Carlsbad and San Marcos south to Sweetwater and Otay Mesa, and east to Alpine (Beauchamp 1986; USFWS 1995). This species is an annual plant that may experience dramatic yearly fluctuations in population size and detectability. The species requires a clay soil substrate, and appears to require particularly a micro-habitat within that general category. It is susceptible to local extirpation by catastrophic fire and surface disturbance (City of Carlsbad 1999).

Del Mar Manzanita (Arctostaphylos glandulosa ssp. crassifolia)

This federally endangered species occurs on sandstone terraces and bluffs and is associated with southern maritime chaparral. This burl-forming, fire-adapted shrub occurs on sandstone terraces and bluffs in southern maritime chaparral. Individuals are typically long-lived. Del Mar manzanita is restricted to San Diego County and northwestern Baja California, Mexico (CNPS 2001; USFWS 2002). Two major populations of this species have been identified in Carlsbad, in the vicinity of Agua Hedionda Lagoon and Green Valley/Olivenhain (City of Carlsbad 1999).

Thread-leaved Brodiaea (Brodiaea filifolia)

This federally threatened, state endangered species generally occurs in heavy clay soils in grasslands or vernal pools. Thread-leaved Brodiaea is known from Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties (CNPS 2001). This species generally occurs in heavy clay soils in grasslands or vernal pools. It is an herbaceous perennial from a corm, and often reproduces asexually by producing corm offsets. A total of ten populations are believed to occur in Carlsbad (CNPS 2001).

Wart-stemmed Ceanothus (Ceanothus verrucosus)

This species is a federal species of concern and is associated with southern maritime chaparral and southern mixed chaparral. It also forms nearly monotypic stands in some inland locations. Wart-stemmed ceanothus is limited to western San Diego County and Baja California, Mexico (CNPS 2001). This evergreen shrub is a highly fire-adapted species whose fire response mechanism is seed germination from a persistent seedbank after exposure to intense heat (CNPS 2001).

Del Mar Mesa Sand Aster (Corethrogyne filaginifolia var. linifolia)

Del Mar Mesa sand aster is a federal species of concern and San Diego County endemic that occurs along bluffs or brushy slopes near the coast from Carlsbad southward to Point Loma. This perennial sub-shrub occurs on sandstone terraces and bluffs in southern maritime chaparral and coastal sage scrub. Individuals typically are relatively short-lived. The species probably is an obligate seeder rather than a vigorous stump-sprouter, and may invade disturbed soils readily.

San Diego Goldenstar (Muilla clevelandii)

This federal species of concern generally occurs in heavy clay soils in grasslands. San Diego Goldenstar is endemic to San Diego County (CNPS 2001) where it has been reported from Carlsbad, San Diego, Rancho Bernardo, Poway, and Otay. This species generally occurs in heavy clay soils in grasslands (CNPS 2001).

Nuttall's Scrub Oak (Quercus dumosa)

Nuttall's Scrub Oak is a federal species of concern and has a disjunctive distribution that includes Santa Barbara, Orange, and San Diego Counties (CNPS 2001). This fire-adapted shrub occurs on sandstone terraces and bluffs in southern maritime chaparral, southern mixed chaparral and coastal sage scrub. Individuals are typically long-lived.

Sensitive Animal Species

San Diego Fairy Shrimp (Branchinecta sandiegoensis)

San Diego fairy shrimp are federally endangered and are usually found early in the season after winter and spring rains in vernal pools on mesas, in roadside ditches, and in shallow (< 30 centimeters) tire ruts (Simovich and Fugate 1992). Hatched eggs incubate at temperatures ranging from 10 to 15 °C. This species occurs in vernal pools from coastal Orange County to northern Baja California, Mexico, from near the coast

(Orange County, Camp Pendleton) inland to Ramona (Simovich and Fugate 1992; Brown, Wier and Belk 1994; USFWS 1997).

Orange-throated Whiptail (Cnemidophorus hyperythrus beldingi)

Orange-throated whiptail is a California species of concern. They are most often associated with open sage scrub habitats with a vegetative cover of about 50%, but are also found in ruderal areas, open chaparral, riparian scrub, and oak woodlands. Orange-throated Whiptail is locally common within its range in the extreme southwest corner of California, which includes parts of Orange, Riverside, and San Diego Counties, and northern Baja California at elevations below 2,800 feet.

Belding's Savannah Sparrow (Passerculus sandwichensis beldingi)

Belding's savannah sparrow is a state endangered species and is restricted to salt marsh, mud flat, and low coastal strand vegetated habitats. This salt marsh sparrow is distributed along the coastline from Santa Barbara County south to northern Baja California. Salt marsh habitats within Agua Hedionda and Batiquitos lagoons contain major populations of this species.

California Least Tern (Sterna antillarum browni)

The federal and state endangered California least tern requires coastal beaches and saltflats for colonial breeding and intertidal and estuarine waters for foraging. The colonially breeding species is distributed along the coast from San Francisco Bay to Baja California. Estuarine and salt marsh habitats within Buena Vista, Agua Hedionda, and Batiquitos lagoons support major populations for the California Least Tern.

Coastal California Gnatcatcher (Polioptila californica californica)

This species is closely associated with coastal sage scrub habitat, especially below 950-foot elevation, and on slopes less than 40 percent (ERCE 1990b; Ogden 1992b; 1993b) and is listed as federally threatened. Within Carlsbad, the number of existing coastal California gnatcatcher pairs fluctuates seasonally and from year to year, based on weather, fires and a number of other factors. Based on current information, estimates of the total coastal California gnatcatcher population in Carlsbad range from 100 to 150 pairs.

Light-footed Clapper Rail (Rallus longirostris levipes)

This subspecies is restricted to coastal salt marshes of southern California and is listed as federal and state endangered. Salt marsh habitat associated with Buena Vista, Agua Hedionda, and Batiquitos lagoons have been identified as critical locations for the this species.

Southern California Rufous-crowned Sparrow (Aimophila ruficeps canescens)

The Rufous-crowned sparrow is a state species of concern and occurs primarily in coastal sage scrub and has declined as a result of habitat loss. Rufous-crowned sparrows occur particularly on steep, rocky slopes with sparse brush intermixed with grassland. Due to the overlap of habitat use by the rufous-crowned sparrow and California gnatcatcher, it is assumed that other rufous-crowned sparrows are located within coastal sage scrub habitat.

Least Bell's Vireo (Vireo bellii pusillus)

This migratory songbird breeds mostly in willow-mulefat-dominated riparian woodlands. It is restricted to riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside Counties, and is listed as federal and state endangered. No major populations or critical locations have been identified for this species in the planning area. However, in 1998 a new population was discovered in the Agua Hedionda Creek west of El Camino Real (Varnus, 1997).

Yellow-breasted Chat (Icteria virens)

This California species of concern occurs in riparian woodlands and is considered an indicator species for potential least Bell's vireo habitat and is an uncommon summer resident of riparian woodland/scrub of coastal plain and foothills of California. It is known from several locations along major riparian corridors in the City (City of Carlsbad 1999).

Regional Resource Planning Context

As a participant in the Natural Communities Conservation Program (NCCP), Carlsbad has prepared a Draft HMP which proposes a comprehensive, citywide program to identify how the City, in cooperation with federal and state wildlife agencies, can preserve the diversity of habitat and protect sensitive biological resources within the City while allowing for additional development consistent with the City's General Plan and its Growth Management Plan. In so doing, the HMP is intended to lead to citywide

permits and authorization for the incidental take of sensitive species in conjunction with private development projects, public projects, and other activities which are consistent with the Plan. These permits would be issued under the U.S. Endangered Species Act, the California Endangered Species Act, and the California Natural Community Conservation Planning Act. Although the City and California Coastal Commission have approved the HMP, the USFWS has not yet issued its Biological Opinion that would authorize take under the HMP.

Based on existing distribution of vegetation communities and sensitive species, Focus Planning Areas (FPAs) were identified in the HMP. The FPAs were further broken down into HMP cores and linkages. Eight core FPAs that are connected to one another and to habitat areas outside the City by a variety of linkages and wildlife movement corridors have been identified. These areas served as a basis for biological planning for the establishment of the proposed preserve system.

Certain naturally vegetated areas in the City are too small, edge-effected, or isolated to be considered biological core or linkage areas, but are nonetheless important to preserve design or the conservation of particular species. These areas are designated as Special Resource Areas (SRAs).

Conservation of land within the City is implemented as either a 1) existing hardline, 2) proposed hardline, or 3) standards area. The existing hardline preserve areas include both publicly owned land and privately owned land that has been committed to habitat conservation as a result of existing open space regulations, past development approvals or other actions. The proposed hardline represents a number of proposed public and private projects which have submitted proposed hardline conservation design for inclusion in the HMP and the preserve system. Upon approval of the HMP, these proposals will obtain the same conservation status as the existing hardline areas. Take of habitat will be authorized for the remaining portions of the projects. For some key properties within the City which have not submitted proposed hardline designs for inclusion in the preserve system at this time, the HMP includes conservation goals and standards which will apply to future development proposals in these areas (*i.e.*, standards areas). The goals and standards have been arranged according to the Local Facilities Management Zones (LFMZs) to which they apply.

4.3.2 Significance Criteria

For purposes of this evaluation, a project component may have a significant effect on the environment if:

- ! Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service?
- ! Have a substantial adverse effect on any riparian, aquatic or wetland habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by California Department of Fish and Game or U.S. Fish and Wildlife Service?
- ! Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- ! Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- ! Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- ! Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?
- ! Impact tributary areas that are environmentally sensitive?

4.3.3 Impact Analysis

Water and sewer project components that were determined to have the potential to impact biological resources that have not previously been evaluated under CEQA are described below and are listed in *Tables S-1* and *S-2*. In general, project components were found to either:

- ! Have been previously analyzed and evaluated under CEQA by a separate development project (*e.g.*, Kelly Ranch, Calaveras Hills);

- ! Have no potential for impacts to biological resources due to a location completely within a currently urbanized area;
- ! Have limited potential for impacts to biological resources mainly due to the existence of known habitats or species adjacent to the proposed project component location; or
- ! Have potential for impacts to biological resources due to the existence of known habitats or species within and around the proposed project component location.

The potential for a project component to result in impacts to biological resources was evaluated based on both existing mapped resources and the potential for resources to develop. Thus, project components which were found to not have a potential to impact biological resources were only determined as such because of their location within extensively developed areas. Project components identified as having a potential for impacts to biological resources are required to have a biological survey report prepared pursuant to CEQA. The discussion of each of these project components below will also provide recommendations for focused surveys. The recommendations for focused surveys are based on existing mapped resources in the vicinity of the project site. The need for these surveys should be re-evaluated as updated and more detailed information is collected from processing of the individual project components or from other adjacent development projects.

Fifty-eight of the project components would not result in significant biological resource impacts based on this program level of analysis. The majority of these facilities are located in existing disturbed areas including road rights-of-way.

The following is a description of the 26 project components that would result in potentially significant impacts to biological resources. These determinations are also summarized in *Tables S-1 and S-2*. Each of these components occurs within or adjacent to known sensitive habitat or species localities and most are within designated standards or hardline conservation areas. As such, implementation of each component identified below has the potential to directly or indirectly affect a sensitive resource and/or affect the establishment of an effective regional preserve system.

Water Master Plan Components

Component 1 – Watermain & PRS Marron Road to Tamarack

This proposed watermain (6,600 feet long) lies within areas mapped as coastal sage

scrub and riparian scrub. In addition, the project would transverse a proposed standards area under the HMP. Recommended focused surveys include project-level vegetation mapping, wetlands delineation, California gnatcatcher, and spring rare plant surveys.

Component 11 – Watermain from Terminus of Component 10 to Maerkle Reservoir

This watermain, totaling 4,100 feet, would be located in areas of fragmented coastal sage scrub within existing agricultural operations and more consolidated coastal sage scrub south of the reservoir. The project would transverse proposed standards and existing hardline conservation areas. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher and spring rare plant surveys.

Component 17 – Watermain, Poinsettia Lane from Skimmer Court to Blackrail Road

Water component 17 includes installation of a 4,500-foot watermain in the future extension of Poinsettia Lane. The alignment transverses maritime succulent scrub, coastal sage scrub, and oak woodland habitats. Sensitive species known to occur in this area include the federally-listed endangered Del Mar manzanita, California gnatcatcher, Del Mar Mesa sand aster, and Nuttall's scrub oak. This area is also a proposed standards area under the Draft Carlsbad HMP. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher, wetlands delineation, and spring rare plant surveys.

Component 19 – Watermain, Aviara Parkway from Plum Tree to Sapphire Drive

This proposed watermain would be approximately 3,100 feet long and would cross some fragmented habitat in the eastern portion of the alignment. This habitat is mapped as coastal sage scrub supporting numerous sensitive species including the federally-listed endangered San Diego thorn-mint, California gnatcatcher, and southern California rufous-crowned sparrow. The habitat in this area contains designations for standards and existing hardline conservation areas. As such, recommended focused surveys include project-level vegetation mapping, California gnatcatcher and spring rare plant surveys.

Component 20 – Pump Station at El Camino Real and Palomar Airport Road

Although this project component is located at a major road intersection, there would be potential impacts to biological resources if the project is sited adjacent to or within extant habitat near the intersection. Habitats existing in this location include coastal sage scrub, southern maritime chaparral, and southern mixed chaparral. No other resources or HMP designations are recorded for this area. However, given the mapped vegetation communities, recommended focused surveys include project-level vegetation mapping, California gnatcatcher and spring rare plant surveys.

Component 22 – Watermain, Along Carlsbad Boulevard From Avenida Encinas South

This project, although situated entirely within the right-of-way of Carlsbad Boulevard, is sited adjacent to the nesting locations for the California least tern and western snowy plover. Indirect construction noise impacts could occur to nesting species as a result. The future biological analysis would need to include a noise assessment and appropriate mitigation, such as seasonal restrictions on construction, adequate buffer areas, or project design features.

Component 28 – Water Reservoir adjacent to Maerkle Reservoir

This water reservoir project is located in an area known to support coastal sage scrub and annual non-native grasslands. California gnatcatchers are also known from this area. There are no HMP conservation designations likely to affect this project component. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher and spring rare plant surveys.

Component 29 – Pump Station Improvements at Maerkle Pump Station

Although this project component includes improvements to an existing PS facility, the PS is located within an annual non-native grassland but adjacent to coastal sage scrub. As such, expansion of the facility may affect existing biological resources. California gnatcatchers are also known from this area. No HMP conservation designations have been proposed for this area. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher and spring rare plant surveys.

Component 30 – Gross Pressure Reducing Station Improvements

This facility is located within agricultural and disturbed habitat areas with no known occurrence of sensitive species. However, the area is a proposed standards area under

the Draft Carlsbad HMP. Therefore it is recommended that focused surveys include project-level vegetation mapping and potential sensitive species assessment.

Component 32 – Foussat Road Well Abandonments

This well abandonment project is located in the City of Oceanside within areas mapped as annual non-native grassland. Occurrences of sensitive species are limited to the adjacent San Luis Rey River and include riparian species such as the federally-listed endangered least Bell's vireo, and yellow-breasted chat. Furthermore, the project is located within Offsite Mitigation Zone I under the Draft Oceanside Subarea Plan of the MHCP. This zone allows for development but does have specific mitigation requirements for permanent impacts to habitats including annual non-native grassland. As such, the project should be evaluated to determine appropriate methods of reducing potential adverse indirect impacts on adjacent sensitive riparian habitats. Recommended focused surveys include project-level vegetation mapping and potential sensitive species assessment. The project is currently being investigated by the City in a Mitigated Negative Declaration.

Component 33 – Calavera Reservoir Improvements

The Lake Calavera Reservoir supports numerous sensitive biological resources including coastal sage scrub, southern mixed chaparral, oak woodland, open water, and riparian scrub habitats. Sensitive species recorded for this area includes the California gnatcatcher. Much of the habitat associated with the reservoir is within an existing hardline conservation area and is a designated mitigation bank. As such, proposed improvements would need to be evaluated with focused surveys to include project-level vegetation mapping, vernal pool assessment, least Bell's vireo, California gnatcatcher, and spring rare plant surveys.

Component 34 – Oceanside Intertie Upgrade

This proposed upgrade is within an area mapped as annual non-native grassland. The area does not have any documented sensitive species occurrences or HMP conservation designations. However, the project should be evaluated within project-level vegetation mapping and potential sensitive species assessment.

Sewer Master Plan Components

Component 2 – North Agua Hedionda Interceptor Rehabilitation – West Segment

This project is currently under evaluation at the EIR level with project-specific vegetation mapping, wetlands delineation, and focused sensitive species surveys. The project has the potential to affect coastal sage scrub, coastal salt marsh, intertidal habitat, California gnatcatcher, and an existing hardline conservation area. Recommended focused surveys to be included in the EIR evaluation include project-level vegetation mapping, wetlands delineation, California gnatcatcher, potential sensitive shorebird species assessment, and spring rare plant surveys.

Component 3 – North Agua Hedionda Interceptor Rehabilitation – East Segment

This project component has also undergone project-specific evaluation. In mid-2003, the City filed a Notice of Exemption for this project. By design, the construction methods are to avoid all impacts to sensitive biological resources. As part of the Exemption, CDFG issued a set of conditions that must be met during the construction phase.

Component 4 – North Agua Hedionda Trunk Sewer

This project involves construction of 5,000 feet of gravity sewer pipeline adjacent to coastal sage scrub supporting California gnatcatcher. The adjacent habitat areas also contain standards and existing hardline conservation designations. As such, the project should be evaluated with focused surveys including project-level vegetation mapping and California gnatcatcher.

Component 5 – North Batiquitos Interceptor Rehabilitation

This interceptor sewer would be located on the north shore of Batiquitos Lagoon where existing mapped resources include coastal sage scrub, maritime succulent scrub, eucalyptus woodland, California gnatcatcher, Belding's savannah sparrow, California least tern, western snowy plover, California adolphia, and wart-stemmed ceanothus. In addition, the lagoon habitat is designated as an existing hardline conservation area. Recommended focused surveys include project-level vegetation mapping, wetlands delineation, California gnatcatcher, potential sensitive shorebird species assessment, and spring rare plant surveys.

Component 9 – Home Plant Lift Station

This lift station is located in a developed area but is adjacent to coastal sage scrub within an existing hardline conservation area. Although no sensitive species are known from this area, recommended focused surveys include project-level vegetation mapping and potential sensitive species assessment.

Component 10 – La Costa Meadows Sewer Extension

This lift station removal and installation of 600 feet of gravity sewer occurs in an area supporting coastal sage scrub habitat. Although it appears that the sewer can be constructed in the El Fuerte Street right-of-way, the street is surrounded by coastal sage scrub with recorded sensitive species including San Diego thorn-mint and orange-throated whiptail and an existing hardline designation. As such the project should be evaluated for potential direct and indirect impacts utilizing project-level vegetation mapping, California gnatcatcher, and spring rare plant surveys.

Component 13 – Various Sewer Line Refurbishment/Replacement

Implementation of these project components shall be conducted such that each proposed work area is adequately evaluated for potential sensitive habitat and species occurrence prior to initiation of work. Methods for impact avoidance and reduction shall be implemented during refurbishment and replacement procedures. These avoidance and impact reducing measures may include hand clearing of vegetation to stumps versus mechanical clearing for access, application of erosion control measures utilizing native seed mixes or existing biomass, and general employee training and awareness of sensitive biological resources.

Component 14 – Vista/Carlsbad Interceptor Reaches VC1 and VC2

This project includes the rehabilitation of over 9,000 feet of pipeline and 25 manholes. The pipeline currently transverses coastal sage scrub and riparian scrub habitat along Buena Vista Lagoon. Known sensitive species in this area include California gnatcatcher, least Bell's vireo, and various raptor species. The lagoon is mainly within an existing hardline conservation area, but standards areas are also designated along the sewer alignment. Recommended focused surveys include project-level vegetation mapping, wetlands delineation, California gnatcatcher, least Bell's vireo, and spring rare plant surveys.

Component 16 – Vancouver Lift Station

This project component includes removal of an existing lift station and construction of 300 feet of gravity sewer. The project appears to only affect annual non-native grassland within a standards area. No sensitive species are recorded from this area. Recommended focused surveys include project-level vegetation mapping and potential sensitive species assessment.

Component 22 – North Batiquitos Lift Station

The lift station is located away from the riparian and tidal portions of the Batiquitos Lagoon but is in an area where coastal sage scrub and annual non-native grassland are mapped. The area is within an existing hardline conservation area and is known to support California gnatcatcher. As such, recommended focused surveys include project-level vegetation mapping, California gnatcatcher, and spring rare plant surveys.

Component 23 – Carlsbad Trunk Sewer

This proposed 2,000-foot pipeline may affect southern mixed chaparral and coastal sage scrub within existing hardline and standards areas. California gnatcatcher and California adolphia are known to exist in this location. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher, and spring rare plant surveys.

Component 28 – Vista/Carlsbad Interceptor Reaches VC3

This sewer line runs along the southern edge of Buena Vista Lagoon and as such has the potential to impact coastal sage scrub and riparian scrub supporting California gnatcatcher. The line also transverses existing hardline conservation areas. Recommended focused surveys include project-level vegetation mapping, California gnatcatcher, and spring rare plant surveys.

Component 29 – Buena Vista Lift Station Upgrade

This lift station is located on the southeast shore of Buena Vista Lagoon. Adjacent resources include freshwater marsh and mapped localities of California least tern, light-footed clapper rail, several raptor species, and California gnatcatcher. This area is also designated as an existing hardline conservation area. Recommended focused surveys include project-level vegetation mapping, wetlands delineation, California gnatcatcher, potential sensitive shorebird species assessment, and spring rare plant surveys.

Component 30 – Buena Vista Lift Station Forcemain

This project component is located within the same area as Component 29 described above. As such recommended focused surveys are the same and include project-level vegetation mapping, wetlands delineation, California gnatcatcher, potential sensitive shorebird species assessment, and spring rare plant surveys.

Component 31 – Vista/Carlsbad Interceptor Reach 11B

This project component includes replacement of 915 feet of 54-inch pipe and a bridge crossing. Existing habitats in this area include coastal sage scrub, coastal salt marsh, and eucalyptus woodland. No sensitive species are recorded for this area; however, it is within an existing hardline conservation area. Recommended focused surveys include project-level vegetation mapping, wetlands delineation, California gnatcatcher, potential sensitive shorebird species assessment, and spring rare plant surveys.

4.3.4 Mitigation Measures

The 26 project components found to have a potentially significant impact to biological resources require mitigation measures. The determination of final mitigation for each project component shall first consider the project design features identified in Table 2-5. Mitigation would then follow the guidelines discussed below but also shall be based on project-level resource evaluation. The project-level evaluation would be more detailed and may result in a finding of no significant impact, and in that event, would not require mitigation. However, at this program level of analysis, each of the components identified as having a significant impact to biological resources would require mitigation.

Following project-level resource mapping and identification of precise implementation methods and location, significant adverse impacts to biological resources can generally be avoided or mitigated through incorporation of one or all of the following measures:

- ! Avoidance and minimization of impacts through project redesign or implementation of construction restrictions including seasonal restrictions (these measures would likely need to be ensured through construction monitoring adjacent to sensitive resource areas);
- ! Conservation of like habitat near to project impact area through dedication of a conservation easement and management endowment; and/or

- ! Enhancement, restoration, and/or creation of habitats affected by the project with methodologies approved by the City and resource agencies.

Project impacts and resultant mitigation requirements will be evaluated under CEQA, the Porter-Cologne Act, federal Clean Water Act, the California Fish and Game Code, the state and federal Endangered Species Acts, and the Natural Communities Conservation Act.

Impacts to jurisdictional wetlands are regulated by two state agencies and one federal agency: the Regional Water Quality Control Board (RWQCB), CDFG, and ACOE, respectively. Authorization of impacts to jurisdictional wetlands occurs through issuance of a Section 401 Water Quality Certification and/or Waste Discharge Requirement by RWQCB, Streambed Alteration Agreement by CDFG, and Section 404 Nationwide or Individual Permit by ACOE. Each of these agencies implement a policy of “no net loss” of jurisdictional wetlands and therefore require that all permanent impacts be mitigated through the creation of like habitat at a ratio of at least 1:1. Impacts are often mitigated through a combination of wetlands creation and enhancement at a combined ratio between 2:1 and 5:1 depending on the rarity or sensitivity of the habitat as well as temporal loss.

Currently, Take Authorization for listed species proposed for coverage under the Carlsbad HMP has not been issued, therefore projects which may impact any state or federally listed species must obtain permit authorization from the resource agencies. The permit authorization may occur through Section 4(d), Section 7, or Section 10(a) by USFWS, or Section 2080.1 or 2081 by CDFG. Section 4(d) is reserved for impacts to coastal sage scrub under the Interim Habitat Loss Permit guidelines. These guidelines allow for take of five percent of coastal sage scrub habitat from the time of NCCP enrollment until Take Authorization is granted through an approved Subarea Plan (*i.e.*, HMP). Section 7 is the authorization mechanism where another federal agency is involved in the project. Typically this agency is the ACOE. Section 10(a) is employed when authorization is granted through a Habitat Conservation Plan (HCP) for the affected species. In cases where the species affected is both state and federally listed, CDFG is consulted throughout the process but only issues a 2081 Consistency Determination. If the species is only state listed, CDFG must issue a 2080.1 take authorization.

Take Authorization thresholds are different for the various permit methods described above, but generally involve the avoidance and minimization of impacts and mitigation

for unavoidable impacts. For most species, mitigation occurs in the form of habitat conservation and/or restoration (where temporary impacts would occur). This habitat conservation must be like habitat supporting an equal or greater number of species than that impacted by the project. Any Take Authorization will likely include evaluation of the project in the context of the proposed HMP such that implementation of the project does not preclude assemblage of the reserve.

Once Take Authorization has been issued for the HMP, impacts to covered species may be permitted without consultation of the resource agencies. The HMP may contain conditional coverage for species and therefore the project would need to be evaluated under the conditions to determine if take is in fact authorized. These conditions may include whether or not the species' locality subject to impacts is within or outside a designated conservation area, whether specific siting criteria have been implemented to reduce potential impacts, and whether seasonal avoidance is being proposed. Although take may be authorized by the HMP, mitigation may still be required on a project-level basis. This mitigation will likely involve dedication of open space within the identified reserve area and/or enhancement of habitats within the reserve.

4.3.5 Residual Impact After Mitigation

Implementation of the suggested mitigation measures would reduce impacts to less than significant.

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4.4 CULTURAL RESOURCES

The purpose of this cultural resource section is to assess general cultural resource conditions and identify potential cultural resources within the vicinity of water and sewer master plan components. Paleontological resources are also addressed. The cultural resource information used in this analysis is from the May 2003 *City of Carlsbad Water and Sewer Master Plans Cultural Resource Background Study* prepared by Gallegos and Associates for this Program EIR (*Appendix B*). Detailed references to specific previous studies used to prepare the Cultural Resources Study can be found in that appendix. Cultural resource field reconnaissance work was not performed for each master plan component as part of this Program EIR.

The Cultural Resources Study included archaeological record and data review of the project areas to determine the recorded patterns of cultural resources within the study area boundaries. From this information and current aerial photographs of the project locations, assessments could be made regarding the potential for cultural resources within the general vicinity of pipelines and facilities. This information also indicated where existing development has precluded the possibility of any cultural resources.

A record search was conducted at the South Coastal Information Center at San Diego State University and Gallegos & Associates library. The record searches principally focused on the locational information for recorded sites. The data from the Information Center was transferred onto the project maps to assess possible conflicts with proposed master plan components. The data was also compared to the project aerial photograph series to determine where recorded archaeological sites were destroyed by previous development. No surveys were conducted for this Program EIR, principally due to the number of projects and miles of project components. As such, this section will identify those project components that would require additional cultural resource investigation when more detailed project design information becomes available.

4.4.1 Existing Conditions/Setting

Cultural Resources

The City of Carlsbad has a very rich and extensive record of prehistoric activity. A summary of the historic setting of previous populations is presented below; *Appendix B* contains a complete description of the historic setting, as well as a complete set of references cited in this section.

Background – Prehistory

The body of current research of prehistoric occupation in San Diego County recognizes the existence of at least two major cultural traditions, discussed here as Early Period/Archaic and Late Period, based upon general economic trends and material culture. Within San Diego County, the Archaic generally spans the period from 10,000 to 1300 years ago, while the Late Period spans from 1300 years ago to historic contact. The Historic Period covers the time from Spanish contact to present.

Early Period/Archaic

The Early Period/Archaic, for this discussion, includes the San Dieguito and La Jolla complexes, which are poorly defined, as are the interrelationship between contemporaneous inland, desert, and coastal assemblages (Gallegos 1987). Initially believed to represent big game hunters, the San Dieguito are better typified as a hunting and gathering society. These people had a relatively diverse and non-specialized economy in which relatively mobile bands accessed and used a wide range of plant, animal, and lithic resources. Movement of early groups into San Diego County may have been spurred by the gradual desiccation of the vast pluvial lake system that dominated inland basins and valleys during the last altithermal period. This hypothesis is supported by the similarity between Great Basin assemblages and those of early Holocene Archaic sites in San Diego County. Several researchers recognized the regional similarity of artifacts and grouped these contemporaneous complexes under the nomenclature of either the Western Pluvial Lakes Tradition or the Western Lithic Co-tradition (Bedwell 1970; Davis et al. 1969; Rogers 1939; Warren 1967; Moratto 1984).

The origin of coastal populations and subsequent interaction between the coastal population and Great Basin/desert groups is a subject of some debate (Gallegos 1987). Whatever their origin, the first occupants immediately exploited the coastal and inland resources of plants, animals, shellfish, and fish (Moriarty 1967; Kaldenberg 1982; Gallegos 1991; Kyle et al. 1998).

The development of a generalized economic system indicates that the San Dieguito and related groups can be placed within the general Archaic pattern. Archaic cultures occur within North America at slightly different times in different areas, but are generally correlated with local economic specialization growing out of the earlier Paleo-Indian Tradition (Willig, Aikens and Fagan 1988). Archaic cultures are often represented by more diverse artifact assemblages and more complex regional variation than occur in

Paleo-Indian traditions. This is generally thought to have resulted from the gradual shift away from a herd-based hunting focus to a more diverse and area specific economy.

The earliest sites are found near coastal lagoons and river valleys of San Diego County. These sites are the Harris Site (CA-SDI-149), Agua Hedionda Sites (CA-SDI-210/UCLJ-M-15 and CA-SDI-10695), Rancho Park North (CA-SDI-4392/SDM-W-49), and Remington Hills (CA-SDI-11069), dating from 9500 to 8000 years B.P. The northern San Diego County coastal lagoons supported large populations, circa 6000 years ago, as shown by the numerous radiocarbon dated sites adjacent to these lagoons. After 3000 years ago, there is a general absence of archaeological sites in north San Diego County to circa 1500 years ago. This reduction in number of archaeological sites can be attributed to the siltation of coastal lagoons and depletion of shellfish and other lagoon resources (Warren and Pavesic 1963; Miller 1966; Gallegos 1985). Archaeological sites dated to circa 2000 years ago are found closer to San Diego Bay, where shellfish were still abundant and may well represent what can be considered the end of the La Jolla Complex (Gallegos and Kyle 1988).

The La Jolla and Pauma complexes, which are identified as following the San Dieguito Complex, may simply represent seasonal or geographic variations of the somewhat older and more general San Dieguito Complex. Inland La Jolla occupation sites have been reported in transverse valleys and sheltered canyons (True 1959; Warren et al. 1961; Meighan 1954). These non-coastal sites were termed “Pauma Complex” by True (1959), Warren et al. (1961), and Meighan (1954). Pauma Complex sites by definition have a predominance of grinding implements (manos and metates), lack shellfish remains, have greater tool variety, seem to express a more sedentary occupation, and have an emphasis on both gathering and hunting (True 1959; Warren 1961; Meighan 1954).

Archaic sites from 10,000 to 1300 years ago within San Diego County include coastal habitation sites, inland hunting and milling camps, and lithic quarry sites. Material cultural assemblages during this long period are remarkably similar in many respects. These deposits may well represent a process of relative terrestrial economic stability and presumably slow cultural change. Though various culture traits developed or disappeared during the long span of 10,000 to 1300 years ago, there is a clear pattern of cultural continuity during this period.

Late Period

During the Late Period (circa 1300 to historic contact), a material culture pattern

similar to that of historic Native Americans first becomes apparent in the archaeological record. The economic pattern during this period appears to be one of more intensive and efficient exploitation of local resources. The prosperity of these highly refined economic patterns is well evidenced by the numerous Kumeyaay/Diegueño and Luiseño habitation sites scattered over San Diego County. This increase in Late Period site density probably reflects better preservation of the more recent archaeological record and a gradual population increase within the region. Artifacts and cultural patterns reflecting this Late Prehistoric pattern include small projectile points, pottery, the establishment of permanent or semi-permanent seasonal village sites, a proliferation of acorn milling sites in the uplands, the appearance of obsidian from Obsidian Butte, and interment by cremation.

Many of the Late Prehistoric culture patterns in southern California were shared with groups along the eastern periphery of the region. Even in the most recent periods, the Native Americans of southern California incorporated many elements of their neighbors' culture into their own cultures. This transference and melding of cultural traits between neighboring groups makes positive associations of archaeological deposits with particular ethnographically known cultures difficult. This is particularly true of the groups within San Diego County. Though significant differences exist between Luiseño and Kumeyaay/Diegueño cultures (including linguistic stock), the long interaction of these groups during the Late Period resulted in the exchange of many social patterns. Archaeologists must rely heavily on ethnographic accounts of group boundaries as recorded during the historic period, although it is not known how long these boundaries had been in place or the validity of these boundaries as presently reported. The project area falls within Luiseño territory as defined by Kroeber (1925).

As a result of contact with Spanish, Mexican and American settlers, Native American populations were decimated by resettlement and disease. Presently, Native Americans are found throughout San Diego County, especially within the 17 San Diego County reservations.

Historical Background

An abbreviated history of Spanish, Mexican and American settlement in San Diego County is presented, taken from Gallegos et al. 1993, for the purpose of providing a background for discussion of the presence, chronological significance and historical relationship of historical resources within the project area. The history of San Diego County is commonly presented in terms of Spanish, Mexican and American political domination. A discussion of historic land use and occupation under periods of political

rule by people of European and Mexican origin is justified on the basis of characteristics associated with each period, when economic, political and social activities were influenced by the prevailing laws and customs. Certain themes are common to all periods, such as the development of transportation, settlement, and agriculture. Robinson (1979) provides a comprehensive account of public and privately owned land in California, with a discussion of laws, activities and events related to the development of the State.

Spanish Period (1769–1821)

The Spanish Period represents: exploration; establishment of the San Diego Presidio, and the San Diego and San Luis Rey missions; the introduction of horses, cattle, and agricultural goods; and, a new method of building construction and architectural style. Spanish influence continued after 1821, when California became a part of Mexico. Under Mexican rule, the missions continued to operate as in the past, and laws governing the distribution of land were also retained for a period of time.

Mexican Period (1821–1848)

The Mexican Period includes the initial retention of Spanish laws and practices until shortly before secularization of the San Diego Mission in 1834, a decade after Spanish rule. Although several grants of land were made prior to 1834, vast tracts of land were dispersed through land grants offered after secularization. Cattle ranching prevailed over agricultural activities and the development of the hide and tallow trade increased during the early part of this period. The Pueblo of San Diego was established and transportation routes were expanded. The Mexican Period ended as a result of the Mexican-American War.

American Period (1848 to Present)

The American Period began when Mexico ceded California to the United States under the Treaty of Guadalupe Hidalgo. Terms of the treaty brought about creation of the Lands Commission, in response to the Homestead Act of 1851, that was adopted as a means of validating land ownership throughout the state through settlement of land claims. Few Mexican ranchos remained intact because of legal costs and lack of sufficient evidence to prove title claims. Much of the land that once constituted rancho holdings became available for settlement by immigrants to California. The influx of people to California and the San Diego region was the result of various factors, including the discovery of gold in the state; the conclusion of the Civil War; the availability of free

land through passage of the Homestead Act; and, later, the importance of the county as an agricultural area supported by roads, irrigation systems, and connecting railways. The growth and decline of towns occurred in response to an increased population and the economic boom and bust cycle in the late 1800s.

Paleontological Resources

The following discussion presents those rock formations considered high to moderately sensitive in paleontological resources.

Unnamed Pleistocene Terrace Deposits

The Coastal Plain Province of San Diego County is characterized by a “stair-step” sequence of elevated marine terraces (uplifted sea floors) and associated marine and non-marine sedimentary covers. These deposits show a direct correlation between elevation and geologic age; the lowest terraces are the youngest, and the highest terraces are the oldest. These deposits consist primarily of poorly indurated claystones and friable sandstones which form a sedimentary veneer.

The unnamed Pleistocene terrace deposits often consist of a basal nearshore marine stratigraphic unit and an upper non-marine stratigraphic unit. The basal unit has produced large and diverse assemblages of marine invertebrate fossils such as mollusks, crustaceans, and echinoids as well as sparse remains of marine vertebrates such as sharks, rays, and bony fish. The upper unit has produced sparse remains of terrestrial mammals such as camel, horse, and mammoth. It is unclear whether the terrace deposits represent nearshore marine or non-marine units discussed above. In either case, no fossils are reported from these exposed terrace deposits. Based on the sedimentary origin of these deposits and the published fossil record, they are assigned a moderate resource sensitivity.

Unnamed Pleistocene Lagoonal Deposits

This interbedded unit of poorly consolidated dark-gray claystone, siltstones, and clayey sandstones underlies the unnamed Pleistocene terrace deposits. These deposits have a patchy distribution.

Estuarine mollusks have been reported from Pleistocene lagoonal deposits occurring in the north San Diego County region. Geotechnical testing resulted in the discovery of fossil plant material in these lagoonal deposits. The recovery of leaves of terrestrial

plants and shells of estuarine mollusks from these deposits suggests a moderate resource sensitivity rating.

Santiago Formation

Middle Eocene sedimentary rocks in north San Diego County have been assigned to the Santiago Formation, with three members ("A," "B" and "C") recognized in the Encinitas-Oceanside area. Member "B" of the Santiago Formation consists largely of green and gray, very fine- to medium-grained, arkosic sandstone, with common calcite-cemented concretions and frequent interbed of multi-colored clayey sandstone and claystone.

Member "B" of the Santiago Formation has produced well-preserved vertebrate fossils from numerous localities in Carlsbad and Oceanside including snakes, turtles, opossums, insectivores, bats, primates, rodents, carnivores, tapirs, brontotheres, rhinoceros, uintathere, protoreodonts, leptoreodonts, and oromerycid artiodatyls. The mammalian fauna is especially significant as it contains a mosaic of archaic and advanced species, and serves to document an important period in mammal evolutionary history. Also recovered from Member "B" deposits are the remains of various types of marine and estuarine mollusks.

Fossils of terrestrial vertebrates have been found in the Santiago Formation which include the remains of extinct rhinoceros, carnivores, tortoise, brontothere, tapirs, and rodents. To the west, this formation grades upward into a shallow marine environment containing fossil clams, snails, sea urchins, sharks, and batray teeth. Member "B" of the Santiago Formation is assigned a high paleontological resource sensitivity.

4.4.2 Significance Criteria

The project components would have a significant effect related to cultural resources/paleontology if it would:

- § Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5;
- § Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines §15064.5;
- § Disturb any human remains, including those interred outside of formal cemeteries; or

- § Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

4.4.3 Impact Analysis

Cultural Resources

The literature review and record search identified 87 previously prepared cultural resource studies conducted within or immediately adjacent to the project study area. Based on these studies, a total of 63 cultural resource sites have been identified within the study area. Of the 63 sites, 9 sites were identified as not significant, 4 sites were identified as significant, 48 sites were identified as unknown site status, and 2 sites were identified as unknown site status for portions of the site. Of the 63 sites, a total of 33 sites have been recorded within the Water Master Plan Update study area, and a total of 34 sites have been recorded within the Sewer Master Plan Update study area. Data gaps include the unevenness of the archaeological record and varied quality of the previously recorded cultural resource database.

A list of the known cultural resource sites that would be potentially affected by various project components in the proposed Master Plan Updates are identified in *Tables 4.4-1* and *4.4-2* below. As such, the project components listed in the tables below have the potential to result in significant impacts to cultural resources. Detailed information on each of these sites is available in *Appendix B* of this EIR. In addition, *Tables S-1* and *S-2* summarize the cultural resource impacts and mitigation for each project component within the proposed Master Plan Updates.

**TABLE 4.4-1
CULTURAL RESOURCE SITES WITHIN OR ADJACENT
TO THE WATER MASTER PLAN UPDATE STUDY AREA**

Water Project Component Number	Site Number	Site Type	Condition
1	CA-SDI-5651	Habitation	Disturbed
	CA-SDI-6139	Habitation	Disturbed
2	No sites		
3	No sites		
4	No sites		

5	No sites		
6	CA-SDI-5416	Artifact scatter; Milling stations	Disturbed
	CA-SDI-5436	Artifact scatter	Unknown

TABLE 4.4-1 (Continued)

Water Project Component Number	Site Number	Site Type	Condition
7	CA-SDI-9615	Artifact scatter	Disturbed
	CA-SDI-15069	Artifact scatter; Milling stations	Fair
8	CA-SDI-15073	Artifact scatter; Milling stations	Disturbed
	P-37-018284	Artifact scatter	Unknown
9	CA-SDI-16135	Artifact scatter	Fair
	P-37-024329	Historic structure	Good
10	CA-SDI-9092	Artifact scatter	Disturbed
	CA-SDI-9094	Artifact scatter	Good
	CA-SDI-15545	Artifact scatter	Disturbed
	CA-SDI-15546	Artifact scatter	Disturbed
11	No sites		
12	CA-SDI-9041	Lithic scatter	Disturbed
13	No sites		
14	CA-SDI-16048	Habitation	Disturbed
	CA-SDI-16049	Habitation	Disturbed
	CA-SDI-16054	Habitation	Disturbed
	P-37-024176	Unknown	Unknown
	P-37-024171	Unknown	Unknown
15	CA-SDI-12739	Lithic scatter	Disturbed
16	CA-SDI-4852	Lithic scatter	Disturbed
17	CA-SDI-6821	Artifact scatter	Disturbed
	CA-SDI-8195	Artifact scatter	Disturbed
	CA-SDI-1016	Shell scatter	Disturbed
18	No sites		
19	No sites		
20	No sites		
21	No sites		
22	CA-SDI-11026	Artifact scatter	Disturbed
23	CA-SDI-6135	Artifact scatter	Disturbed
	CA-SDI-9653	Artifact scatter	Disturbed
24	No sites		
25	CA-SDI-8195	Artifact scatter	Disturbed
26	No sites		
27	CA-SDI-6819	Artifact scatter	Disturbed

TABLE 4.4-1 (Continued)

Water Project Component Number	Site Number	Site Type	Condition
28	No sites		
29	No sites		
30	No sites		
31	No sites		
32	No sites		
33	CA-SDI-5793	Historic	Unknown
34	No sites		
35	CA-SDI-15069	Artifact scatter, milling stations,	Fair
36	CA-SDI-5431	Unknown	Unknown
F1	No sites		
F2	CA-SDI-10746	Artifact scatter	Disturbed
F3	No sites		
F4	No sites		
F5	No sites		
F6	No sites		
F7	No sites		
F8	No sites		
F9	No sites		
F10	No sites		
F11	No sites		
F12	CA-SDI-13701	Habitation	Disturbed
F13	No sites		
F14	No sites		

TABLE 4.4-2
CULTURAL RESOURCE SITES WITHIN OR ADJACENT
TO THE SEWER MASTER PLAN UPDATE STUDY AREA

Sewer Project Component Number	Site Number	Site Type	Condition
1	CA-SDI-760	Artifact scatter	Disturbed
2	CA-SDI-13701	Habitation	Disturbed
3	CA-SDI-209	Artifact scatter	Disturbed
	CA-SDI-6140	Artifact scatter	Disturbed
	CA-SDI-9654	Artifact scatter	Disturbed

4	No sites		
5	CA-SDI-608	Artifact scatter	Disturbed
	CA-SDI-694	Artifact scatter	Disturbed
	CA-SDI-6823	Shell Scatter	Disturbed

TABLE 4.4-2 (Continued)

Sewer Project Component Number	Site Number	Site Type	Condition
5	CA-SDI-6826	Artifact scatter	Disturbed
	CA-SDI-11953	Artifact scatter	Disturbed
	CA-SDI-12807	Habitation	Disturbed
	CA-SDI-12810	Artifact scatter	Disturbed
6	No sites		
7	CA-SDI-6751	Shell scatter	Disturbed
	P-37-15325	Isolate	Disturbed
8	No sites		
9	No sites		
10	CA-SDI-9846	Artifact scatter	Disturbed
11	No sites		
12	CA-SDI-4858	Shell Scatter	Good
13	N/A		
14	CA-SDI-628	Artifact scatter	Disturbed
	CA-SDI-5652	Habitation	Disturbed
	CA-SDI-9472	Artifact scatter	Disturbed
	CA-SDI-9473	Artifact scatter	Good
	CA-SDI-9474	Historic	Disturbed
	CA-SDI-9967	Habitation	Disturbed
15	No sites		
16	CA-SDI-9472	Artifact scatter	Disturbed
17	CA-SDI-5601	Unknown	Unknown
18	No sites		
19	CA-SDI-5440	Shell Scatter	Unknown
20	No sites		
21	No sites		
22	No sites		
23	CA-SDI-5601	Unknown	Unknown
	CA-SDI-5651	Habitation	Disturbed
24	N/A		
25	N/A		
26	N/A		
27	N/A		

TABLE 4.4-2 (Continued)

Sewer Project Component Number	Site Number	Site Type	Condition
28	No sites		
29	No sites		
30	CA-SDI-629	Artifact scatter	Destroyed
31	CA-SDI-210	Unknown	Unknown
31	CA-SDI-6751	Shell scatter	Disturbed
	P-37-15325	Isolate	Disturbed
32	No sites		
33	No sites		
34	CA-SDI-6133	Artifact scatter	Disturbed
	CA-SDI-5353	Artifact scatter	Disturbed
	CA-SDI-6135	Artifact scatter	Disturbed
	CA-SDI-9653	Artifact scatter	Disturbed
	CA-SDI-10671	Artifact scatter	Disturbed
	CA-SDI-10672	Artifact scatter	Disturbed
	CA-SDI-13008	Artifact scatter	Disturbed

Paleontological Resources

Implementation of the proposed Master Plan facilities could involve grading and excavation activities within fossil-bearing geologic formations which could potentially impact significant paleontological resources. Specific locations of potential impact would be those locations considered to be high- to moderately sensitive in paleontological resources. It should be noted that specific information would become available at the time of grading.

Construction of new facilities may disturb fossil-bearing geological strata in almost any location in the city. Pipelines are generally constructed in road rights-of-way or existing easements where strata have already been disturbed, so that the potential for intact fossils representing significant paleontological information is low. The same condition will prevail at sites of lift stations, reservoirs, and pump stations where prior construction has extensively disturbed the underlying earth materials.

4.4.4 Mitigation Measures

Cultural Resources

Survey, testing, and mitigation programs (where necessary) are recommended for the cultural resources sites with undetermined site status and are based on CEQA and City of Carlsbad Guidelines. For undeveloped lands, these consist of the project components which have not been previously surveyed, and due to the high sensitivity of prehistoric sites near lagoons, all project components within one-half mile of a lagoon.

For all sites located within undeveloped land, surface collections should be used to determine the site limits and areas of artifact concentrations in order to ascertain placement of test units and shovel test pits (STPs) and/or backhoe trenches. Excavation units (1 x 1m) should be those areas where ground stone, fire-altered rock, or a concentration of flaked material occur. Backhoe trenching is recommended at those sites where deep subsurface deposits (i.e., historic privies or dumps or subsurface prehistoric deposits) are possible. For all sites located within developed land, a monitoring program is recommended during construction. Monitoring is recommended for sites that have been previously addressed as to mitigation of impacts through a data recovery program, as additional unknown buried deposits may still be present. For the historic sites, the test program should include a literature/historic files review, mapping of any remaining structures, and mechanical backhoe trenching when applicable for determining the location of historic dumps. Mitigation through data recovery and all reports should follow City of Carlsbad Guidelines (1980).

The following recommended mitigation measures would reduce impacts identified above in *Section 4.4.3* to less than significant.

1. Obtain permission from private landowners to survey the fields and yards in order to determine presence/absence of cultural resources. If cultural resources are located then mitigation measure [2] is recommended.
2. Test those sites that have not yet been tested so a determination of significance can be made. If the resource is determined to be significant, mitigate through avoidance. If avoidance is not feasible, then mitigation through a data recovery program (see mitigation measure [3]).
3. If site avoidance, the preferred mitigation measure, is not feasible, then a data recovery program should be completed to recover a large enough sample of cultural material so that information of importance in addressing regional research questions will not be irretrievably lost through impacts.

4. Provide a qualified archaeological monitor during construction so that buried cultural resources can be identified in the field. Upon identification, the resource should be tested (mitigation measure [2]) to determine significance with appropriate mitigation measures as necessary.

Monitoring Program

An additional mitigation measure is intended for many sites within the study area that are located within developed areas. For these sites, a monitoring program, rather than a test program, is recommended if construction is to occur within or adjacent to the site. Components of such a monitoring program would include, but not be limited to the following:

Prior to Preconstruction (Precon) Meeting

1. Planning Department Plan Check
 - a. Prior to the first Precon Meeting, the Environmental Compliance Officer/Planner (ECO/P) of the Planning Department shall verify that the requirements for Archaeological Monitoring and Native American monitoring, if applicable, have been noted on the appropriate construction documents.
2. Submit Letter of Qualification to the Planning Department
 - a. Prior to the first Precon Meeting, the applicant shall provide a letter of verification to the ECO/P stating that a qualified Archaeologist has been retained to implement the monitoring program.
3. Records Search Prior to Precon Meeting
 - a. At least thirty days prior to the Precon Meeting the qualified Archaeologist shall verify that a records search has been completed and updated as necessary and be prepared to introduce any pertinent information concerning expectations and probabilities of discovery during trenching and/or grading activities. Verification includes, but is not limited to, a copy of a confirmation letter from South Coast Information Center or, if the search was in-house, a letter of verification from the Archaeologist stating that the search was completed.

Precon Meeting

1. Monitor Shall Attend Precon Meetings
 - a. Prior to beginning any work that requires monitoring, the Applicant shall arrange a Precon Meeting that shall include the Archaeologist, Construction Manager and/or Grading Contractor. The qualified Archaeologist shall attend any grading related Precon Meetings to make comments and/or suggestions concerning the Archaeological Monitoring program with the Construction Manager and/or Grading Contractor.
2. Identify Areas to be Monitored
 - a. At the Precon Meeting, the Archaeologist shall submit to ECO/P a copy of the site/grading plan (reduced to 11x17) that identifies areas to be monitored as well as areas that may require delineation of grading limits.

During Construction

1. Monitor Shall be Present During Grading/Excavation

The qualified Archaeologist shall be present full-time during grading/excavation of native soils and shall document activity via the Consultant Monitor Record. This record shall be sent to the ECO/P, as appropriate, each month.

- a. Monitoring

Trenches Will Include Mainline, Laterals, and all Appurtenances. Monitoring of trenches is required for the mainline, laterals, services and all other appurtenances that impact native soils one foot deeper than existing as detailed on the plans or in the contract documents identified by drawing number or plan file number. It is the Construction Manager's responsibility to keep the monitors up-to-date with current plans.

- b. Discoveries

Discovery Process

In the event of a discovery, and when requested by the Archaeologist, or the Principal Investigator (PI) if the Monitor is not qualified as a PI, the

Construction Manager (CM), as appropriate, shall be contacted and shall divert, direct or temporarily halt ground disturbing activities in the area of discovery to allow for preliminary evaluation of potentially significant archaeological resources. The PI shall also immediately notify ECO/P of such findings at the time of discovery.

b. Determination of Significance

The significance of the discovered resources shall be determined by the PI. For significant archaeological resources, a Research Design and Data Recovery Program shall be prepared, approved by the agency and carried out to mitigate impacts before ground-disturbing activities in the area of discovery will be allowed to resume.

c. Minor Discovery Process for Pipeline Projects

For all projects: The following is a summary of the criteria and procedures related to the evaluation of small cultural resource deposits during excavation for pipelines.

2. Coordination and Notification

- a. Archaeological Monitor shall notify PI, CM and ECO/P, as appropriate.

3. Criteria used to Determine if it is a Small Cultural Resource Deposit

- a. The deposit is limited in size both in length and depth; and,
- b. The information value is limited and is not associated with any other resources; and,
There are no unique features/artifacts associated with the deposit.
- c. A preliminary description and photographs, if available, shall be transmitted to ECO/P.
- d. The information will be forwarded to the Planning Department for consultation and verification that it is a small historic deposit.

4. Procedures for documentation, curation and reporting

The following constitutes adequate mitigation of a small historic deposit to reduce impacts due to excavation activities to below a level of significance.

- a. 100 percent of the artifacts within the trench alignment and width shall be documented in-situ, to include photographic records, plan view of the trench and profiles of sidewalls, recovered, photographed after cleaning and analyzed and curated.
- b. The remainder of the deposit within the limits of excavation (trench walls) shall be left intact.
- c. The Final Results Report shall include a requirement for monitoring of any future work in the vicinity.

5. Human Remains

If human remains are discovered, work shall halt in that area and procedures set forth in the California Public Resources Code (Sec. 5097.98) and State Health and Safety Code (Sec. 7050.5) as follows:

- a. Notification
 - 1) Archaeological Monitor shall notify the PI, CM and ECO/P.
 - 2) The PI shall notify the County Coroner after consultation.
- b. Stop work and isolate discovery site
 - 1) CM/ECO/P, as appropriate, shall stop work immediately in the location of the discovery and any nearby area reasonably suspected to overlay adjacent human remains until a determination can be made by the County Coroner in consultation with the PI concerning the origin of the remains and the cause of death.
 - 2) The County Coroner, in consultation with the PI, shall determine the need for a field investigation to examine the remains and establish a cause of death.

- 3) If a field investigation is not warranted, the PI, in consultation with the County Coroner, shall determine if the remains are of Native American origin.
- c. If Human Remains are Native American
- 1) The Coroner shall notify the Native American Historic Commission (NAHC). (By law, **ONLY** the Coroner can make this call.)
 - 2) NAHC will identify the person or persons it believes to be the Most Likely Descendent (MLD).
 - 3) The MLD may make recommendations to the landowner or PI responsible for the excavation work to determine the treatment, with appropriate dignity, of the human remains and any associated grave goods (PRC 5097.98).
- d. If Human Remains are not Native American
- 1) The PI shall contact the NAHC and notify them of the historical context of the burial.
 - 2) NAHC will identify the person or persons it believes to be the MLD.
 - 3) The MLD may make recommendations to the landowner or PI responsible for the excavation work to determine the treatment of the human remains (PRC 5097.98).
 - 4) If the remains are of historic origin, they shall be appropriately removed and conveyed to the Museum of Man for analysis. The decision for reinterment of the human remains shall be made in consultation with ECO/P, the landowner, the NAHC and the Museum of Man.
- e. Disposition of Human Remains
- The landowner, or his authorized representative, shall reinter the Native American human remains and any associated grave goods, with appropriate dignity, on the property in a location not subject to further subsurface disturbance, IF:
- 1) The NAHC is unable to identify the MLD, OR the MLD failed to make a recommendation within 24 hours after being notified by the Commission; OR;

- 2) The landowner or authorized representative rejects the recommendation of the MLD and mediation in accordance with PRC 5097.94 (k) by the NAHC fails to provide measures acceptable to the landowner...

5. Notification of Completion

The Archaeologist shall notify the ECO/P, in writing of the end date of monitoring.

Post Construction

1. Handling and Curation of Artifacts and Letter of Acceptance
 - a. The Archaeologist shall be responsible for ensuring that all cultural remains collected are cleaned, catalogued, and permanently curated with an appropriate institution; that a letter of acceptance from the curation institution has been submitted to the Planning Development; that all artifacts are analyzed to identify function and chronology as they relate to the history of the area; that faunal material is identified as to species; and that specialty studies are completed, as appropriate.
 - b. Curation of artifacts associated with the survey, testing and/or data recovery for this project shall be completed in consultation with ECO/P and the Native American representative, as applicable.
3. Final Results Reports (Monitoring and Research Design and Data Recovery Program)
 - a. Within three months following the completion of monitoring, two copies of the Final Results Report (even if negative) and/or evaluation report, if applicable, which describes the results, analysis, and conclusions of the Archaeological Monitoring Program (with appropriate graphics) shall be submitted to ECO/P for approval.
 - b. For significant archaeological resources encountered during monitoring, the Research Design and Data Recovery Program shall be included as part of the Final Results Report.

4. Recording Sites with State of California Department of Park and Recreation

The Archaeologist shall be responsible for recording (on the appropriate State of California Department of Park and Recreation forms-DPR 523 A/B) any significant or potentially significant resources encountered during the Archaeological Monitoring Program in accordance with the City's Historical Resources Guidelines, and submittal of such forms to the South Coastal Information Center with the Final Results Report.

Paleontological Resources

1. Projects that may impact paleontologically sensitive areas (*i.e.*, formations that have been assigned high or moderate paleontological resource sensitivity), will require paleontological monitoring onsite during all phases of initial and subsequent cutting of undisturbed formational sediments in order to make salvage collections of any invertebrate, vertebrate or paleobotanical fossils that are encountered or unearthed.
2. Collected fossils shall be cleaned and/or prepared to a point of identification, and then curated to museum standards (cataloging of locality and specimen data, numbering, identification, labeling) before being deposited in an appropriate public facility (or facilities) that can provide permanent archival storage (so that specimens are available for future scientific study). A report detailing the mitigation shall be prepared, even if negative, which will include necessary maps, graphics, and fossil lists to document the paleontological monitoring program.
3. Paleontological monitoring will be required for all exposures of the Santiago Formation and of Pleistocene marine terrace and estuarine deposits. A museum collections and records search will precede any field work, in order to more precisely define any areas that might need particular attention during monitoring of construction related activities. Monitoring is not necessary in areas mapped as granitic (tonalite, gabbro) or metavolcanic rock.
4. These general guidelines shall be followed when planning for a project component which requires paleontological monitoring:
 - a. The paleontologist or paleontological monitor shall attend any preconstruction/pregrading meetings to consult with City/District staff and the excavation contractor.

- b. The paleontologist or paleontological monitor shall be onsite full-time during excavation into previously undisturbed formations. The monitoring time may be decreased at the discretion of the paleontologist in consultation with the City/District.
- c. If significant fossils are encountered, the paleontologist shall have the authority to divert or temporarily halt construction activities in the area of discovery to allow recovery of fossil remains, and shall immediately contact the City/District. The determination of significance shall be at the discretion of the paleontologist.
- d. Construction activities in the area of discovery shall resume upon notification by the paleontologist that fossil remains have been recovered. The paleontologist shall be responsible for preparation of fossils to a point of identification and submittal of a letter of acceptance from a local qualified curation facility. The paleontologist shall record any discovered fossil sites at the San Diego Natural History Museum.
- e. Within three months following termination of the paleontological monitoring program, the contractor shall provide a monitoring letter report (with appropriate graphics) to the City/District summarizing the results (even if negative), analyses and conclusions of the above program.

4.4.5 Residual Impacts after Mitigation

Cultural Resources. With the implementation of the mitigation measures identified in *Section 4.4.4*, impacts would be reduced to less than significant.

Paleontological Resources. With the implementation of the mitigation measures identified in *Section 4.4.4*, impacts would be reduced to less than significant.

4.5 GEOLOGY AND SOILS

The purpose of this section is to assess general geologic conditions and identify potential geologic impacts, geotechnical hazards, and effects to mineral resources in the project areas. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific geotechnical analyses were not performed for the project areas.

General geologic and soil resource conditions were researched through the use of reports and data produced by the California Department of Conservation (DOC), the California Geological Survey (CGS, formerly the Division of Mines and Geology), San Diego State University Geology Department, the City General Plan (1994) and associated General Plan Master EIR (1994), the City and County of San Diego online geographical database (www.SanGIS.org), and the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS, formerly the Soil Conservation Service). A complete listing of these references is included in *Chapter 9.0*.

4.5.1 Existing Conditions

Soils

The study area contains seven general soil associations as indicated by the San Diego County Soil Survey (1996). Soils associations are useful for developing a general idea of the soils in an area and for determining the value of an area for certain uses. The following discussion outlines these soil classifications.

1. **Marina-Chesterton Association:** This association consists of somewhat excessively drained to moderately well drained loamy coarse sands and fine sandy loams that have a subsoil of sandy clay over a hardpan. This soil type is located between sea level and 400 feet above mean sea level and occurs on grades of 2 to 15 percent (NRCS 1973).
2. **Salinas-Corralitos Association:** This consists of moderately well-drained to somewhat excessively drained clays, clay loams, and loamy sands on alluvial fans, on 0 to 9 percent slopes.
3. **Cieneba-Fallbrook Association (Very Rocky):** These soils are excessively drained to well-drained coarse sandy loams and sandy loams that have a sandy

clay loam subsoil over decomposed granodiorite. These soils occur between 200 and 3,000 feet above mean sea level and occur on 9 to 75 percent slopes.

4. **Exchequer-San Miguel Association:** Rocky, well drained silt loams over metavolcanic rock, typically on 0 to 30 percent slopes.
5. **Diablo-Altamont Association:** Well drained clays are the major characteristic of this association, normally found on 5 to 15 percent slopes.
6. **Diablo-Las Flores Association:** This association consists of well drained clays and moderately well drained loamy fine sands that have a subsoil of sandy clay. These soils occur between 100 and 600 feet above mean sea level and occur on 9 to 30 percent slopes (NRCS 1973).
7. **Las Flores-Huerhuero Association:** This association consists of moderately well-drained loamy fine sands to loams that have a subsoil of sandy clay or clay; 9 to 30 percent slopes.

Faults and Seismic Hazards

The study area for the Master Plans is located within seismically active southern California. Although this region is known to be akin to seismic events, there are no known faults within the area, and no Alquist- Priolo Special Study Zones have been identified (City of Carlsbad 1994). The primary off-shore faults include the Coronado Bank, San Diego Trough and San Clemente systems. The main fault system in western San Diego County is the Rose Canyon Fault which originates in Mission Bay, drops off into the Pacific Ocean at La Jolla Shores and then runs north along the coast to Oceanside. Several smaller faults exist on the San Diego Mesa, largely within the City of San Diego. These faults include the Texas Street Fault, the Fortieth Street Fault, the La Nacion Fault and the Florida Canyon Fault. Regional fault systems, including the San Jacinto, San Andreas and Elsinore Faults are located to the east and north of the study area (Kern 1989).

Liquefaction and dynamic settlement of soils can be caused by strong vibratory motion resulting from seismic activity. Research and historical data indicate that loose, granular soils are susceptible to these effects, while the stability of most silty clay and clay soils is not adversely affected by vibratory motion. Among granular soils, finer textured varieties are most susceptible to liquefaction than coarse-grained types, and soils of uniform grain size are more likely to liquefy than well-graded materials. There

are limited areas in the City which are considered potentially subject to liquefaction, including areas west of El Camino Real, the areas in and around lagoons, and along the beaches (City of Carlsbad 1994).

Mineral Resources

The Surface Mining and Reclamation Act of 1975 requires the State Board of Mining and Geology and the State Geologist to prepare mineral resource reports that designate mineral deposits of statewide or of regional significance. The process involves classification and designation. Classification inventories select mineral commodities within a defined study area. These are areas where adequate information indicates that significant mineral deposits are present or where it is judged that a high likelihood for their presence exists. Designation identifies deposits of regional or statewide significance which are available from a land use perspective. The CGS characterizes mineral potential according to their Mineral Resource Zone (MRZ) categories. Areas classified as MRZ-1 are considered to have little likelihood of containing significant deposits suitable for production as high-quality aggregate. Areas classified as MRZ-2 have a high likelihood that significant deposits of PCC grade aggregate exist. Areas classified as MRZ-3 are areas containing aggregate deposits, the significance of which cannot be evaluated from existing data or available information. And finally, MRZ-4 denotes areas where not enough information is known to determine if mineral deposits are present or if they are significant. These areas do not fit into any other MRZ zone (CGS 1996).

The majority of the project study area is located in a MRZ-3 zone (CGS 1996). Also, a portion of the study area immediately south of SR78/College Boulevard intersection that extends toward Lake Calavera, is designated as MRZ-2. This zone consists of the South Coast Materials Company Carlsbad Quarry. This MRZ-2 zone indicates the presence of significant mineral deposits or the high likelihood that they exist.

Mineral resources within the City of Carlsbad are no longer being extracted and utilized as exploitable natural resources. There are several abandoned gravel pit operations within City limits, and two abandoned salt evaporation ponds; one is near the south shore of the Buena Vista Lagoon and the other one is north of La Costa Avenue near the eastern perimeter of the Batiquitos Lagoon (City of Carlsbad 1994).

4.5.2 Significance Criteria

The project components would have a significant effect related to geology and soils if it

would:

- ! Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving:
 - (i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault (based on the Division of Mines and Geology Special Publication 42);
 - (ii) Strong seismic ground shaking;
 - (iii) Seismic-related ground failure, including liquefaction; or
 - (iv) Landslides;
- ! Result in substantial soil erosion or the loss of topsoil;
- ! Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- ! Be located on expansive soils, as defined in Table 18 - 1-B of the Uniform Building Code (1994), creating substantial risks to life or property;
- ! Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater;
- ! Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State; or
- ! Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

4.5.3 Impact Analysis

At this program level of analysis, the actual level of impact cannot be determined. That is, project components would require site-specific geotechnical studies for engineering and design, which would determine the actual level of environmental impact. These future geotechnical investigations will describe site-specific conditions and suggest mitigation measures for the issues outlined in this Program EIR section. As such, impacts would be presumably reduced to less than significant at the project level once detailed project data can be assessed and mitigation measures are implemented. No unmitigable significant effects are anticipated. More detailed analysis follows.

Soils

Potentially significant construction-related impacts associated with the Master Plans include encountering unstable soil and rock conditions and exposure of oversize rock material during grading. The design of each project component would be accompanied by a geotechnical evaluation that would indicate if such hazards were present. If the geotechnical study so indicated, the proposed facility site would be relocated to a nonhazardous area.

The specific soil types each project component will impact at this time are unknown. Assuming a site-specific geotechnical study is completed, additional information regarding content, expansiveness, stability, potential for subsidence and compactibility will be determined during project planning and design. Appropriate mitigation measures would be incorporated into the design to reduce the potential for significant effects. Also, septic tanks or alternative wastewater disposal methods are not proposed as part of the Master Plans. For this program level of analysis, impacts would be less than significant.

During the construction of proposed Master Plan components, erosion could be accelerated which could undermine slopes, create siltation of surface waters, and expose and damage underground facilities. All construction must be performed in accordance with the requirements of the Carlsbad Grading Ordinance, which requires the control of erosion during construction and the stabilization of all disturbed surfaces upon completion of construction. It is not anticipated that the project would result in substantial soil erosion or significant losses of topsoil.

Faults and Seismic Hazards

The study area is located within seismically active southern California. Master Plan components are not anticipated to traverse known faults associated with the Rose Canyon Fault System. Additionally, due to the project design feature in *Table 2-5* which requires that all project components be constructed in accordance with Uniform Building Code requirements related to protection against seismic instability, subsidence and liquefaction hazards and stability impacts would be less than significant.

The proposed project components may be locally subject to seismically induced secondary effects related to liquefaction, lateral spreading, local subsidence of soil, and vibrational damage. Pipelines are replaced or rehabilitated typically by trenching and backfill, underground. The pipe is supported on bedding material, and at least six to eight inches of clearance is left between the pipe and trench walls. Suitable granular pipe zone material is placed around and on top of the pipe. Backfill must consist of suitable material, free of organic material, debris, and large rocks. This construction method absorbs energy during seismic events and relieves susceptibility to ground motion that would cause rupture of the pipe. Because of the construction specifications described above, impacts associated with seismic hazard are not considered significant.

The two Master Plans include a number of sizable new facilities, pump stations, pressure reducing stations, and reservoirs. City engineering requirements implemented during the planning and design of such facilities require a thorough geotechnical evaluation before final plans are approved. Recommendations for remedial action, if needed, that are identified in the geotechnical report must be implemented by the construction contractor. This process is designed to avoid the potential for significant seismic and geological hazards associated with such facilities.

Reservoirs may pose a potential threat to surrounding areas in a seismic event. However, for seismic events of the most common intensities, aboveground reservoirs usually do not rupture but, if ground movement is sufficient, move about as a unit on the building pad. Damage to offsite areas from ruptured reservoirs has been a rare event in southern California in recent decades. Construction of these reservoirs is preceded by a geotechnical study intended to identify the maximum intensity of ground acceleration most likely to occur at a given locality (the “maximum credible event”), and the reservoir is designed to resist damage in such an event. Steel reservoirs are designed to meet the seismic safety standards of the American Water Works Association, and concrete reservoirs are designed to meet the seismic safety standards of the Structural Engineering Association of California.

Mineral Resources

No project components are located within designated MRZ-1 or MRZ-2 zones. The South Coast Materials Company Carlsbad Quarry and associated MRZ-2 zone are located east of and away from project components. There would not be impacts to the known aggregate resources associated with the quarry.

The remaining components of the Master Plans are all located within MRZ-3 zones. Due to the necessity of performing a site-specific geotechnical investigation, additional information regarding the unknown content of MRZ-3 zones will be explored at the time of project-specific detailed planning and engineering studies. Due to the general nature of information available at this program level of analysis, impacts are anticipated to be less than significant.

4.5.4 Mitigation Measures

No significant geology and soils impacts have been identified; mitigation measures are not required.

4.5.5 Residual Impact After Mitigation

Impacts would be less than significant.

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4.6 HAZARDS AND HAZARDOUS MATERIALS

4.6.1 Existing Conditions

The purpose of this hazards and hazardous materials section is to identify potential hazards associated with development of project components, and to identify project design features and mitigation measures that will reduce potential impacts to a less than significant level. No Environmental Site Assessments (Phase I or II) were conducted for this Program EIR, principally due to the large number and scale of project components.

The project has the potential to cause different types of hazards and hazardous materials impacts. These potential hazards include natural hazards such as those associated with development of a project component in high fire hazard areas. Other potential hazards are related to human activities. These hazards include the potential for leaks or spills of raw sewage from pipelines or sewage conveyance facilities, potential for leaks or spills of petroleum fuels during construction and operation of the project, and the potential for disturbance of a site containing hazardous materials. The project also has the potential to cause hazards due to its proximity to the McClellan-Palomar Airport in the City of Carlsbad.

Hazardous Materials and Hazardous Material Sites

According the City's General Plan Master EIR (1994), approximately 75 percent of registered hazardous substances in the City are located at gas stations and auto-related businesses. All gas station are located on land which is commercially designated on the General Plan. Smaller scale auto service uses such as body shops and repair shops are generally located along State Street. Other small scale uses such as dry cleaners, medical/dental offices and veterinary clinics use and produce extremely small quantities of hazardous materials and waste annually and are also distinguished largely through the City's commercially designated land use areas.

The large-scale use of hazardous materials is well defined in the community, and is restricted primarily to industrially allocated land in business parks surrounding the airport and west of I-5 along Avenida Encinas. The majority of these uses are either related to semi-conductor production or the biotech industry. Additionally, small-scale aviation-related businesses (which may store aviation fuel) are located near McClellan-Palomar Airport. The only industrial business operating on land without an industrial General Plan designation is the South Coast Asphalt Company on Haymar Road. This business uses quarrying and road surface materials.

Utilities, such as San Diego Gas and Electric (SDGE) and the Encina WPCF, use some hazardous materials in their operations but they do not directly manufacture or dispose of hazardous materials as their primary purpose. These sites are designated Public Utility on the General Plan and Zoning Maps.

There are two former waste disposal facilities located in the City. The first site is adjacent to the south side of McClellan-Palomar Airport. This site was used for disposal of household waste between 1962 and 1975. No hazardous materials have been identified at the site, and it was closed and capped by the County of San Diego in accordance with Title 14 of the California Code of Regulations. The second site is located in the far northeastern corner of the City, and was also used for the burning of municipal waste. The site has not been operational since 1961 and has since been redeveloped (City of Carlsbad 1994). There are no known illegal dumps with hazardous materials within the City.

The construction phase of the proposed project would involve the transport of gasoline and other fuels to project sites for the sole purpose of equipment fueling. Transportation of hazardous materials is overseen by the County of San Diego Department of Health Services.

Airport Safety Hazard

McClellan-Palomar Airport is located approximately four miles southeast of the Carlsbad Village Area and is a general aviation, publicly owned airport facility. SANDAG acts as the Airport Land Use Commission (ALUC) for the San Diego region under 1970 state legislation and is charged with developing airport Comprehensive Land Use Plans (CLUP). In cooperation with the County of San Diego, SANDAG has prepared a CLUP for the McClellan-Palomar Airport in order to *“identify areas likely to be impacted by noise and flight activity created by aircraft operations at the airport,”* and *“preclude incompatible development from intruding into areas of significant risk resulting from aircraft takeoffs and landing patterns,”* (1994 CLUP p. 5).

The CLUP identifies Airport Influence Areas. These are areas adjacent to airports which are likely to be affected by noise from aircraft operations at the airport. Within the larger Airport Influence Area, other operational areas, such as the Flight Activity Zone (FAZ), are also identified which reflect specific aircraft operational overflight patterns as outlined in Federal Aviation Administration (FAA) regulations. The Airport Influence Area represents the outer boundary of the ALUC’s planning and review authority and is

primarily concerned with development compatibility issues associated with noise impacts and aircraft impacts in the airport vicinity.

The FAZ for the McClellan-Palomar Airport was determined based upon noise, flight hazards, and obstruction criteria in accordance with the CalTrans Division of Aeronautics 1983 Airport Land Use Planning Handbook. This handbook includes several examples of airport safety zone shapes based on accident potential. The McClellan-Palomar Airport's FAZ is identified as containing potential operational flight activity hazards and "*areas which should be held free from intensive development*" (1994 CLUP p.12). In turn the CLUP defines "*intensive development*" as residential of more than 10 dwelling units per acre, "*including high rise development and all uses which involve the assembly of large groups of people (more than 100)*" (1994 CLUP p. 12-13). Several project components are located within the McClellan-Palomar Airport's FAZ as delineated by the CLUP, and several project components are within two miles of the airport.

Wildfire Hazards

The project components would primarily be located within developed areas and roadways; however, portions of the proposed project are located within and adjacent to open space areas with potentially flammable materials such as brush, grass or trees.

4.6.2 Significance Criteria

The project components would have a significant effect related to hazards and hazardous materials if it would:

- ! Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- ! Create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- ! Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school;
- ! Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would

- ! it create a significant hazard to the public or environment;
- ! For a project within an airport land use plan, or where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area;
- ! For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area;
- ! Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or
- ! Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.3 Impact Analysis

Hazardous Materials and Hazardous Material Sites

Impacts due to release of hazardous materials during the construction and operation of project components would be less than significant with incorporation of the project design features described in *Table 2-5*. More detail on types of hazards impacts is given below.

During the operational stage of the proposed project, pipe rupture or lift station failure could result in spillage of raw sewage, and exposure of the public and the environment to health hazards. However, the pipelines would be constructed with polyvinyl chloride (PVC) pipe, which is highly resistant to rupture. In addition, pump stations included as part of the project are designed with safety features, including an emergency generator in case of electrical failure, and sufficient sewage detainment capacity in the event of generator and/or pump mechanism failure. This would allow time for repair and/or emergency conveyance of the sewage. Should emergency leaks or spills occur, the Sewer Prevention and Response Plan for the CSD will be implemented.

The storage of chemicals and use of petroleum fuel will be required for stationary engines present at some of the pump stations during operation of the proposed project. The use, storage, transportation, and disposal of these substances is regulated by the County Department of Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. The adherence to statutory

standards and practices of the proposed project components will reduce the risk of an explosion or release of hazardous substances to the environment due to an accident or upset conditions. Also, no use of extremely hazardous materials such as gaseous chlorine or other chemicals is proposed; therefore, impacts would not be significant.

Although the City has relatively few known hazardous materials sites, there is the possibility that unknown sites exist. Also, while some water and sewer master plan facilities would be located within a quarter mile of existing schools, no hazardous emissions would occur (more information on emissions is described in *Section 4.2, Air Quality*). However, additional project-level analysis is required to determine the significance of potential hazard effects for all project components. Since hazardous materials sites are subject to changing conditions; *e.g.*, closure of known sites, discovery of new hazardous materials sites, site leakages, and/or remediation of existing sites, it is not appropriate to make a project-level significance determination at this program level of analysis. Details on the known hazardous materials locations would need to be investigated at the project level of analysis for individual project components to determine the specifics on location, type, and status of hazardous materials sites that may be affected. The analysis would include a discussion of whether any project component would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Accordingly, a project design feature to prepare site-specific hazardous materials analyses has been incorporated in *Table 2-5* to ensure impacts remain at a less than significant level.

Airport Safety Hazard

As discussed above under Existing Conditions, several project components would be located within the Palomar-McClellan Airport Influence Area and FAZ. The project does not involve any construction or long-term operational features that would result in an airport safety hazard for people residing or working in the project area. Activities at Palomar-McClellan Airport would be unaffected by the proposed project. Impacts would be less than significant.

Emergency Response Plans

As noted above, the use, storage, transportation, and disposal of hazardous materials is regulated by the County Department of Hazardous Waste Management, and will be conducted according to all applicable state, federal and local regulations. The adherence to statutory standards and practices of the proposed project components will reduce the risk of an explosion or release of hazardous substances to the environment due to an

accident or upset conditions. In order to reduce the potential for construction traffic conflicts which may include emergency evacuation plans, a traffic control plan would need to be developed as part of the project, as described in *Table 2-5* (also see *Section 4.10, Transportation/Circulation*). With the prescribed traffic control plan and adherence to applicable regulations, the project would not significantly impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

Wildfire Hazards

Due to the undeveloped nature of land and potentially flammable materials such as brush, grass or trees surrounding several project components, construction would pose a slight risk of wildland fires. There is a project design feature listed in *Table 2-5* to prepare a brush management plan and to disseminate fire safety information to construction crews would help to ensure impacts would not be significant. As such, the project would not expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.4 Mitigation Measures

No significant impacts have been identified; mitigation measures are not necessary.

4.6.5 Residual Impacts after Mitigation

Impacts would be less than significant.

4.7 HYDROLOGY AND WATER QUALITY

The purpose of this section is to assess general surface water hydrology and water quality conditions and identify potential hydrology and water quality impacts in the project areas. The information used in this analysis is general in nature and is derived from the most readily available information found in applicable resource and planning documents. Site-specific hydrology reports or drainage studies were not performed for the project areas.

The general surface water hydrology and water quality conditions of the project area were based on review of the *Water Quality Control Plan for the San Diego Basin* (State of California 1994), City of Carlsbad General Plan (1994) and General Plan Master EIR (1994), and the City and County of San Diego online geographical database (www.SanGIS.org) for floodplains. Aerial photography provided by Aerial Access 2002, and vegetation cover created for the Multiple Habitat Conservation Program (SANDAG 1995) were also reviewed to determine existing land cover and vegetative cover, respectively. A complete listing of these references is included in *Chapter 9.0*.

4.7.1 Existing Conditions

Hydrology

The project components are located within the San Diego Hydrologic Region, which drains west into the Pacific Ocean. The San Diego Hydrologic Region encompasses approximately 3,900 square miles and is further subdivided into 11 major watersheds. The project components occur primarily in the Carlsbad Watershed. The Carlsbad Watershed occupies approximately 210 square miles, extending from Lake Wohlford on the east to the Pacific Ocean on the west and from Vista on the north to Cardiff-by-the-Sea on the south. This watershed includes the cities of Oceanside, Carlsbad, Encinitas, Vista, and Escondido. The watershed is drained by Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks and contains four coastal lagoons, including Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons (*Figure 4.7-1*). The Carlsbad Watershed is comprised of the following six drainage basins: Loma Alta, Buena Vista Creek, Agua Hedionda, Encinas, San Marcos, and Escondido Creek. The project components occur within the Buena Vista Creek, Agua Hedionda and Encinas drainage basins. A few of the project components are located near Buena Vista Creek, Agua Hedionda Creek, and San Marcos Creek and some of the major project components are located near the Buena Vista, Agua Hedionda, and Batiquitos lagoons.

One of the project components (component 32) is located within the San Luis Rey Watershed, located immediately north of the Carlsbad Watershed (*Figure 4.7-1*). This watershed is drained by the San Luis Rey River. Component 32 is located within the Lower San Luis drainage basin.

Floodplains

The Federal Emergency Management Agency (FEMA) has mapped special flood hazard areas which include land subject to the 100-year flood. A 100-year flood is defined as an area of land that would be inundated by a flood having a 1 percent chance of occurring in any given year (<http://www.fema.gov>, accessed April 2003). The 100-year flood is the standard used by most federal and state agencies and by the National Flood Insurance Program (NFIP) for floodplain management and for flood insurance purposes. Several project components would cross areas located within the 100-year floodplains of Buena Vista Creek and Agua Hedionda Creek (*Figure 4.7-1*).

Water Quality

The goal of the Regional Water Quality Control Board (RWQCB) is to preserve and enhance the quality of water resources in the San Diego Region for the benefit of present and future generations (RWQCB 1994). In accordance with the federal Clean Water Act, the RWQCB adopted a *Water Quality Control Plan* (1994) which recognized the regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems.

As identified in the *Water Quality Control Plan*, the designated beneficial uses for Buena Vista Creek, Agua Hedionda Creek, San Marcos Creek, and San Luis Rey River may include the following:

- ! Municipal and domestic supply
- ! Agricultural supply
- ! Industrial service supply
- ! Contact water recreation
- ! Non-contact recreation
- ! Warm freshwater habitat
- ! Wildlife habitat
- ! Rare, threatened and endangered species

Figure 4.7-1
11 x 17 color

Figure 4.7-1
11x17 color backup

Beneficial uses for Buena Vista, Agua Hedionda, and Batiquitos Lagoons may include the following:

- ! Navigation
- ! Contact water recreation
- ! Non-contact recreation
- ! Commercial and sport fishing
- ! Estuarine habitat
- ! Wildlife habitat
- ! Rare, threatened and endangered species
- ! Marine habitat
- ! Aquaculture
- ! Migration of aquatic organisms
- ! Shellfish harvesting
- ! Warm freshwater habitat

Regulatory Considerations

The principle federal law regulating surface water quality is the 1972 Clean Water Act. The Clean Water Act sets up a system of water quality standards, discharge limitations, and permits. Under Section 404 of the Clean Water Act, the USACOE regulates discharges of dredged or fill material into waters of the U.S. Activities that may result in the dredge or fill of waters of the U.S. require issuance of a Section 404 permit from the USACOE. Under Section 401 of the Clean Water Act, a state water quality certification must be obtained whenever an application for a federal permit for discharge of pollutants into waters of the U.S., such as a Section 404 permit, is submitted. The Section 401 certification requires any activity affecting waters of the U.S. be in compliance with all applicable water quality standards, limitations and restrictions.

Division 7 of the California Water Code, commonly referred to as the state Porter-Cologne Water Quality Act, is the principal state law enacted to establish requirements for adequate planning, implementation, management, and enforcement for the control of water quality. This act established a regulatory program to protect water quality and beneficial uses of all state waters. The act also established the State Water Resources Control Board (SWRCB) and RWQCB as state agencies responsible for water quality control. For the San Diego Hydrologic Region, water quality is regulated by the RWQCB, Region 9 of the SWRCB.

Conformance with the Clean Water Act and Porter-Cologne Water Quality Act is required for any discharges, including erosion, into waters of the U.S. through compliance with the SWRCB's NPDES General Construction Permit. Issuance of a NPDES Permit requires preparation of a Notice of Intent with the SWRCB and development of a SWPPP and monitoring program that incorporates applicable BMPs. Construction activity would also be subject to the erosion control requirements set forth in the City's Grading Ordinance.

Other applicable regulations include Sections 1601-1603 of the California Fish and Game Code. The CDFG regulates wetland areas as defined by the Fish and Game Code. A Section 1601/1603 Streambed Alteration Agreement is required from CDFG whenever CDFG jurisdictional wetlands are altered or fish or wildlife resources are adversely affected. Additional information related to wetlands is found in *Section 4.3, Biological Resources*.

4.7.2 Significance Criteria

The project components would have a significant effect related to hydrology and water quality if it would:

- ! Violate any water quality standards or waster discharge requirements;
- ! Substantially deplete groundwater supplies or interfere substantially with ground water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground water table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- ! Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;
- ! Result in impacts to groundwater quality;
- ! Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site;

- ! Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the flow rate or amount (volume) of surface runoff in a manner, which would result in flooding on- or off-site;
- ! Create or contribute runoff water, which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- ! Otherwise substantially degrade water quality;
- ! Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood delineation map;
- ! Place within 100-year flood hazard area structures, which would impede or redirect flood flows;
- ! Expose people or structures to a significant risk of loss injury or death involving flooding, including flooding as a result of the failure of a levee or dam;
- ! Result in inundation by seiche, tsunami, or mudflow;
- ! Result in increased erosion (sediment) into receiving surface waters;
- ! Result in increased pollutant discharges (*e.g.*, heavy metals, pathogens, petroleum derivatives, synthetic organics, nutrients, oxygen-demanding substances and trash) into receiving surface waters or other alteration of receiving surface water quality (*e.g.*, temperature, dissolved oxygen or turbidity);
- ! Result in changes to receiving water quality (marine, fresh or wetland waters) during or following construction;
- ! Result in increases in any pollutant to an already impaired water body as listed on the Clean Water Act Section 303(d) list; or
- ! Result in the exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses.

4.7.3 Impact Analysis

This section presents the evaluation of potential impacts to hydrology, floodplains, and water quality as a result of implementation of the Water and Sewer Master Plans. A number of project design features that would help minimize the effects of the project on water quality and hydrology are included in *Table 2-5*.

Potential impacts to hydrology, floodplains and water quality were evaluated by overlaying the project components with the San Diego Hydrologic Basin Planning Area Map (RWQCB 1994), aerial photography, MHCP vegetation cover and the SANDAG digital coverage for floodplains. For this program level of analysis, a qualitative assessment of the potential impacts to water resources was conducted. As future project-specific information comes forth for individual project components, subsequent analyses pursuant to CEQA will be conducted that may incorporate a quantitative evaluation of impacts.

Water Quality and Drainage

For project components that occur in developed areas, such as roadways, no new additional runoff into local drainages is anticipated upon completion of project construction. During construction, runoff and sedimentation into nearby drainages would be minimized and avoided through incorporation of project design features described in *Table 2-5*, such as the use of gravel bags as erosion control measures. For project components that would cross wetland areas, impacts to water quality could occur as a result of runoff and sediment transport during construction activities. Incorporation of project design features described below would minimize impacts to water quality to less than significant.

Construction and operation of a number of project components may require dewatering in pipeline trenches in order to place infrastructures underground. Dewatering of groundwater may result in potential impacts to surface water quality due to the unknown chemical makeup of groundwater. Dewatering and discharge activities are subject to water quality guidelines outlined by the NPDES administered by the San Diego RWQCB. In addition to dewatering, stockpiling of soil removed during construction of trenches may result in sediment-laden runoff from construction sites. The increase in total dissolved solids, minerals and other inorganic materials may enter local drainages and exceed water quality standards.

Because violation of water quality standards may occur during dewatering, discharge, and trenching associated with construction of project components, impacts to water quality are considered potentially significant.

As stated in *Section 4.7.1*, there are a number of project components located adjacent to the Agua Hedionda Creek and Lagoon, and the Buena Vista Lagoon. These water bodies are identified on the SWRCB's 2002 Section 303(d) List of Water Quality Limited Segments. Under Section 303(d) of the 1972 Clean Water Act, states, territories and authorized tribes are required to develop a list of water quality limited segments. These waters on the list do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. The project components under both master plans that have the potential to affect the 303(d) water bodies are identified in Tables S-1 and S-2 and would result in potentially significant impacts to water quality.

Hydrology and Groundwater

The proposed project involves both minor improvements such as manhole replacements and major improvements such as replacement of a sewer main. The construction and operation of the proposed project would not use groundwater and would not directly affect groundwater levels. Dewatering, a method which pumps groundwater into either a surface water body or directly into a stormwater drainage system, may be required to prepare sites for placement of proposed pipelines and other underground facilities; however, the potential impact to groundwater would be temporary and would not substantially deplete groundwater supplies. Also, the amount of groundwater that would be directed to stormwater drainage systems would not exceed capacity for those systems. Impacts to hydrology and groundwater supplies would be less than significant.

Floodplains

Several project components are located in the 100-year floodplain, as defined by FEMA, and would continue to cross the 100-year floodplain with implementation of improvements to project components. The proposed project involves replacement of manholes, sewer mains and modifications to pump stations and pipelines. No housing is proposed as part of the project, therefore no impacts to housing as a result of flooding would occur with implementation of the proposed project. It is unlikely that the project components occurring within the 100-year floodplain would impede or redirect flow because the majority of the project components would be placed underground. All areas

within the floodplain would return to pre-construction contours. The flood capacity would not be altered as a result of the proposed project. Floodplains impacts would be less than significant.

Based on this program level of analysis, impacts would potentially occur to all project components located within the 100-year floodplain, as defined by FEMA. The potentially significant impacts would be associated with the loss of any project components as result of the scouring action by a flood. Implementation of the mitigation measure described in *Section 4.7.4* would reduce potential impacts to below a level of significance.

Dredge and fill activities that occur within a floodplain would require the appropriate permits from the ACOE, CDFG and RWQCB. Additional mitigation measures may be required as part of those permits and these site-specific measures would be developed once project level information is assembled for a project component.

Other Impacts

The project would not result in an increased potential for inundation by seiche, tsunami, or mudflow. Implementation of the master plans would not affect the potential for these events to occur; impacts would be less than significant.

4.7.4 Mitigation Measures

Implementation of the following mitigation measure will reduce the likelihood of a loss of a structure within a floodplain during a flood event.

- ! For projects proposed with the 100-year floodplain, a scour analysis of the floodplains associated with Buena Vista and Agua Hedionda creeks shall be completed during final project design to determine the likelihood for washout of a pipeline or project facility during a flood event. Design and construction specification of the pipeline will incorporate recommendations from the report to ensure that potential impacts from scouring do not comprise the integrity of the pipeline. The list of projects located within the 100-year floodplain is found in *Tables S-1 and S-2*.

In addition to incorporation of project design features shown in *Table 2-5*, mitigation measures described below shall be implemented in order to reduce impacts to water

quality to less than significant.

- ! Dewatering activities will be conducted in accordance with standard regulations of the RWQCB. A dewatering permit will be obtained.
- ! Discharge of groundwater will require a NPDES General Storm Water Permit that will include provisions for implementation of BMPs to reduce potential water quality impacts.
- ! Material stockpiled during construction shall be placed such that interference with onsite drainage patterns will be minimized or avoided. During rain events, stockpiles shall be covered with impermeable materials such as tarps in order to allow flow from the construction site to occur without excessive sediment loading.
- ! Potential water quality impacts to 303(d) listed water bodies (Agua Hedionda Creek and Lagoon, Buena Vista Lagoon) will be assessed as part of project-level water quality analyses for each individual project component with a potential to affect these water bodies. The list of project components that would potentially affect the 303(d) water bodies is found in *Tables S-1* and *S-2*.

4.7.5 Residual Impacts After Mitigation

All impacts are mitigable to a level below significance by implementation of the measures listed in *Table 2-5* and in *Section 4.7.4*; the residual impact is less than significant.

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4.8 LAND USE AND PLANNING

This chapter evaluates the physical and policy-level impacts of the proposed project on existing, planned, and proposed land uses. The land use analysis of existing land uses was based on a review of land use maps, aerial photographs, and limited site visits. Planned land use information was obtained from applicable planning documents of the affected jurisdictions. A review of the City of Carlsbad's files pertaining to planned or recently proposed projects within the project study area was also conducted, and City planning staff were consulted.

Aside from impacts to the existing and planned land uses analyzed by this section, a number of additional land use related topics are addressed elsewhere in this Program EIR. Aesthetics is discussed in *Section 4.1*; Air Quality issues are described in *Section 4.2*; Noise is discussed in *Section 4.9*, and Traffic issues are discussed in *Section 4.10*.

4.8.1 Existing Conditions

Land use planning and development approval is guided by federal, state, and local governmental agencies and their adopted policies and ordinances. Each jurisdiction is responsible for maintaining a quality environment for its citizens and users through adoption of long-range planning documents. These documents contain goals, policies, implementation procedures, and regulatory controls to guide and enforce conformance. The most common guide used by local jurisdictions to define land use patterns is the general plan. Land use elements of general plan documents typically contain those policies and maps governing land use compatibility within the jurisdiction. All zoning within a jurisdiction must be consistent with the plans, programs, and policies of the general plan. The proposed project includes multiple components that are geographically dispersed, predominantly located within the City of Carlsbad. For illustrative purposes, *Figure 2-2* shows the general location of project components in relation to the affected jurisdictional entities. The applicable jurisdictions and their adopted planning documents are discussed below, with an emphasis on the policies contained in the respective community facility and land use elements.

Existing Land Use

The City of Carlsbad is a coastal jurisdiction bordered generally on the north by the cities of Oceanside and Vista, on the east by Vista and San Marcos, and on the south by Encinitas. Approximately 68 percent of the City is undeveloped, with the remainder being developed with a variety of land uses. Of the developed areas, 55 percent is

residential uses, 17 percent is commercial and/or industrial use, and another 17 percent is comprised of open space uses. The remaining 10 percent of the developed areas consists of public uses and utility right-of-ways. The majority of existing commercial development within the City is located along El Camino Real, immediately south of Highway 78, and south of Cannon Road along I-5. In addition, existing commercial uses predominate the City's downtown along with numerous hotels and service stations along the I-5. Industrial land uses are primarily concentrated within the City's centralized industrial corridor which surrounds Palomar Airport and extends in a broad band generally to the eastern and western City limits. The majority of developed areas located immediately north of Palomar Airport in the Carlsbad Research Center and at the I-5 and Poinsettia Lane interchange consist of mixed industrial/commercial uses. The majority of open space land is composed of three major lagoons located within the City, including Buena Vista, Agua Hedionda and Batiquitos and their associated tributaries. Other major open space areas include Calavera Lake and the Veteran's Memorial Park site. Dispersed Civic activities such as schools, parks, city buildings and storage yards are located throughout the City.

Regulations and Planning Policies

The Growth Management and Public Facilities Section of the City's General Plan Land Use Element contains goals and objectives, which outline the City's desire to ensure the timely provision of public facilities, and maintenance of its existing facilities, which will adequately serve the projected population and preserve the quality of life of residents. For example, policies within this Element of the General Plan require the City to ensure pipeline capacity will meet demand, as determined by the CMWD and CSD, concurrently with development, and cooperate with other jurisdictions to ensure the timely provision of water distribution and sewage disposal capacity. The Public Utility and Storm Drainage Facilities Section of the City's Circulation Element also contains relevant policies for the provision and maintenance of water and sewer infrastructure. These policies include maintaining master plans for the expansion of local water and sewer facilities, coordinating the planning and construction of public utilities with existing public utilities in adjoining neighborhoods, and ensuring continued coordination between the City and special utility districts and public utility companies operating in Carlsbad.

San Diego County Multiple Habitat Conservation Program

As described in *Section 4.3*, the MHCP is a regional effort conducted in conjunction with Section 10a of the Federal Endangered Species Act and the California Natural

Communities Conservation Planning Act and is the framework for development of a regional habitat preserve for many increasingly rare plant and wildlife species in northwestern San Diego County. The MHCP is a multi-jurisdictional planning effort which has included the cities of Oceanside, Vista, San Marcos, Escondido, Encinitas, Carlsbad, and Solana Beach. Each city is tasked with developing a sub-area plan in order to set about policies and regulatory mechanisms to carry out the goals outlined in the regional MHCP.

Other Applicable Regional Plans

The project's consistency with other applicable regional plans are analyzed in the respective section of this Program EIR. These include the SANDAG Congestion Management Plan and Regional Transportation Plan, which are addressed in *Section 4.10*; the Regional Air Quality Strategy (refer to *Section 4.2*); and the RWQCB Basin Plan for the San Diego Basin (as identified in *Section 4.7*).

4.8.2 Significance Criteria

The proposed project would have a significant effect on land use if it would:

- ! Physically divide an established community;
- ! Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- ! Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.8.3 Impact Analysis

The Master Plans include both major and minor project components, including facilities for water storage, water distribution and sewer collection that interact with local land uses in a number of ways. Most of the projects included in the Master Plans fall into two major categories. The first category includes below-ground facilities such as pipelines which are installed in easements or rights-of-way and do not have local land use effects of significance after installation or rehabilitation, except when maintenance is required. The second category includes more visible improvements such as water storage

reservoirs, pump stations, and lift stations, which can be built partially or completely aboveground.

Pipelines, and to a lesser extent other water and sewer infrastructure, are installed in public rights-of-way in existing or planned roads as much as possible. During construction and if maintenance is necessary, there are potential indirect impacts associated with traffic and possible conflicts with other utilities. Impacts may also occur in areas where pipelines are installed in public street rights-of-way or to natural resources where pipelines leave public street rights-of-way to connect, for instance, to reservoirs or pump stations.

As shown in *Figure 2-2*, a majority of proposed facility improvements will be rehabilitated or constructed either on public property already developed with similar facilities, or, in the case of pipelines, within existing public roadways and utility rights-of-way. In some cases, pipelines may be routed in private or easement roads that provide access to private property and residences. Construction for either installation of new facilities or rehabilitation of existing components can affect access and the grade or surfacing of the road. Therefore, as part of the project design features, the Districts will be required to conduct the work in such a way that reasonable access is maintained throughout and to restore road surfaces, in both public and private rights-of-way, to their pre-existing condition or better (refer to *Table 2-5*).

Development and rehabilitation of the master planned facilities may occur in areas where sensitive natural or cultural resources are present. It is the policy of the Districts that wherever such impacts from projects within the scope of the Program EIR may occur, they will be mitigated to a level below significance. General mitigation guidelines are established in this Program EIR and are to be followed on a project-specific basis as discussed in the Biological Resources, Cultural Resources, and Geology and Soils sections of the document. These mitigation measures are designed to reduce the potential impacts to below a level of significance.

The water components located near the Maerkle Reservoir (components 28 and 29) are proposed to be constructed on undeveloped land, designated Open Space in the Carlsbad General Plan. The Open Space designation does not preclude these necessary utility/infrastructure facilities. Also, these facilities would be similar to the existing Maerkle PS and reservoir, and would be consistent with the existing land use and would not conflict with the Open Space designation. Component 28, the proposed reservoir, would not be visually intrusive since it is proposed to be buried adjacent to the existing reservoir. Enlarging the existing Maerkle PS (water component 29) would not alter the existing land use of the site. Land use impacts would be less than significant.

Water component 1, a proposed new watermain and PRS, would be located within future Marron Road. Although the existing easterly section of the road is not built, the watermain would be co-located within the future road, and land use impacts would be less than significant. Also, a number of large water lines are proposed within future roads that are being developed as part of other development projects in the City (as shown in *Figure 2-3* and described in *Section 2.4*). These include components 6, 9, 10, 12, 13, 14, 15, and 23. Since these facilities would be installed within future roads as part of those projects, they would be compatible from a land use perspective and impacts would not be significant. Further analysis is provided as part of the individual CEQA reviews as identified in *Table 2-2*.

The proposed site for water component 20, the proposed pump station at the southeast corner of Palomar Airport Road and El Camino Real, is designated Governmental Facility in the City General Plan. The project would be consistent with this designation and impacts would be less than significant.

The new water reservoir proposed adjacent to the existing D-3 reservoir (component 27) would be located in a residential area, and due to its proposed siting adjacent to similar infrastructure uses, land use impacts would be less than significant.

The proposed sewer lift station abandonments and improvement projects would not result in any long-term land use conflicts. Lift station improvement projects would not result in an alteration of the existing or planned land use. Similarly, removal of a lift station would result in land being cleared of the aboveground facility and would not result in land use effects.

For water component 32, located within the city of Oceanside, the abandonment of nine water wells near Foussat Road is currently being reviewed in a separate CEQA document (City of Carlsbad 2003). Within the City of San Marcos just east of Carlsbad, water component 26 is located within the Palomar Airport Road right-of-way and due to its proposed location, is unlikely to conflict with any land use plans of the City of San Marcos.

Potential conflicts with utilities, including natural gas lines or electrical conduits, are identified in the engineering and design stage of all projects. The Districts' policy is to coordinate all construction, repair, and maintenance activities with any other utility owner whose facilities may be affected in the planning stage. Potential impacts are mitigated to the greatest extent feasible and to a level below significance by this policy.

Land Use Compatibility

The City retains authority for existing infrastructure and planned capacity improvements to support all designated land uses in the City of Carlsbad General Plan. The CMWD and CSD facilities are necessary infrastructure elements for all types of development. The Water and Sewer Master Plan Updates were developed after a careful survey of existing development, planned development, General Plan designations, and other land use planning features and documents. As a result, the projected phasing and intensity of future improvements are based on the most up-to-date land use information available.

The Master Plans were designed to provide the City with orderly plans for the development of water utilities to meet the present and future needs of the City as reflected in the General Plan. The plans are therefore consistent with and provide a blueprint for implementing the policies related to water and sewer infrastructure expressed in the General Plan Land Use and Circulation Elements. As described in *Section 4.8.1*, these policies mandate the orderly development of adequate water utility facilities to meet existing needs and future growth requirements.

The Master Plan Updates are intended by the CMWD and CSD to implement the policies of the General Plan Land Use Element in an integrated fashion, and have been designed to be consistent with the General Plan. From a standpoint of local land use designations and zoning, all project components in the Master Plan Updates are either compatible with local land use regulations or would be compatible, subject to use permit limitations. The projects would not physically divide an established community; once construction is complete, the linear pipeline projects would not be noticeable. Land use impacts would be less than significant.

Additionally, as discussed in the Transportation/Traffic section, potential impacts for traffic will also be mitigated to the greatest extent feasible by coordination with the affected planning departments, as well as all other agencies with jurisdiction over the project. Where work is done in public street rights-of-way, project design plans will be required to conform with the most current edition of the Caltrans *Traffic Control Manual*. Further, all traffic control plans shall be designed in accordance with Caltrans' *Manual of Traffic Controls for Construction and Maintenance Work Zones*. Adherence with these project design features will ensure that traffic-related land use impacts do not breach a level of significance (refer to *Table 2.1*).

The coastal zone for the City of Carlsbad is located west of El Camino Real. As portions of the proposed project are located in this area, they have the potential to affect the Coastal Zone, and some activities will be subject to a Coastal Development Permit (CDP). Since Carlsbad has an approved Local Coastal Program (LCP) as of 1996, the City acts as the local permitting authority for the issuance of CDPs for projects located within its Coastal Zone, with a few exceptions. There are “exclusionary areas” where the state retains permitting authority. For example, Agua Hedionda Lagoon lies outside of Carlsbad’s permitting authority, and projects in its vicinity would require a CDP from the State California Coastal Commission. All projects in the Carlsbad coastal zone will require review for consistency with the LCP and California Coastal Act prior to issuance of a CDP. The future required review and issuance of CDPs would ensure that infrastructure projects, particularly those located outside of public rights-of-way or property or in sensitive areas, will be consistent with the LCP; individual components would require this review on a project-by-project basis to ensure that impacts would be less than significant.

For other development approvals by local jurisdictions outside the City of Carlsbad but within the Districts’ service areas, project design engineers are required to coordinate the design with the City. These projects might also require discretionary permits. Future potential land use impacts that might result from a need for necessary infrastructure improvements would be evaluated at the time of project design and review.

The projects proposed in the Master Plan Updates would not conflict with any existing general plan, coastal plan or any other land use plan or policy. Consequently, no adverse impact to land use planning would result from implementation of the Master Plans.

4.8.4 Mitigation Measures

No mitigation measures are required beyond those identified in the Biological Resources, Cultural Resources, and Geology and Soils sections of this document.

4.8.5 Residual Impact After Mitigation

Land use impacts would be less than significant.

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4.9 NOISE

This section will provide existing noise guidelines information and analyze the proposed project's consistency with these guidelines. Noise is defined as unwanted or undesired sound. Sound levels can be measured fairly easily, however, the variability is subjective and physical response to sound complicates the identification of noise impacts. The basic terminology and concepts of noise are described below.

Noise is generally defined as unwanted sound. The noise environment in the City of Carlsbad is characterized by various levels of natural, man-made, and mechanical noise generated from airborne, mobile, and stationary sources. Sound (noise) levels are measured in decibels (dB). *Table 4.9-1* depicts common sound levels for various noise sources. Community noise levels are measured in terms of the A-weighted sound level. The A-weighted scale adjusts the measured sound levels to generally correspond with the way the human ear responds to sound. All sound levels discussed in this section are A-weighted.

**TABLE 4.9-1
TYPICAL SOUND LEVELS MEASURED IN
THE ENVIRONMENT AND INDUSTRY**

NOISE SOURCE	A-WEIGHTED SOUND LEVEL IN DECIBELS	NOISE ENVIRONMENT	SUBJECTIVE IMPRESSION
Civil Defense Siren (100 ft.)	130		
	120		Threshold of Pain
	110	Rock Music Concert	
Pile Driver (50 ft.)	100		Very Loud
Power Lawn Mower (3 ft.)			
Motorcycle (25 ft.)	90	Boiler Room	
Diesel Truck (50 ft.)		Printing Press Plant	
Garbage Disposal (3 ft.)	80		
Vacuum Cleaner (3 ft.)	70		Moderately Loud
Normal Conversation (3 ft.)	60		
		Department Store	
Light Traffic (100 ft.)	50	Private Business Office	
Bird Calls (distant)	40		Quiet
Soft Whisper	30	Quiet Bedroom	
	20	Recording Studio	
	10		Threshold of Hearing
	0		

* Table contents compiled through various sources. See references *Section 9.0*.

Additional units of measurement have been developed to evaluate the long-term characteristics of sound. The equivalent sound level or Leq, also referred to as the average sound level, is a single-number representing the fluctuating sound level in dB over a specified period of time. It is a sound-energy average of the fluctuating level and is equal to a constant unchanging sound of that dB level.

People are generally more sensitive and annoyed by noise during the evening and nighttime. Therefore, another noise descriptor used in community noise assessments, termed the Community Noise Equivalent Level (CNEL) was introduced. The CNEL scale represents a time-weighted 24-hour sensitivity during the evening (7:00 p.m. to 10:00 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding five and ten decibels, respectively, to the average sound levels occurring during these hours.

4.9.1 Existing Conditions

According to the General Plan (1994), the primary noise-sensitive land use in the City of Carlsbad is residential land use. Libraries, churches and some passive parks and recreation areas also represent noise sensitive land uses. Traffic represents the most significant noise source in Carlsbad. Interstate 5 has the greatest existing and projected roadway noise emissions. In addition, I-5 impacts the greatest number of existing dwellings. Additional noise sources located within the city include: Palomar Airport, located west of El Camino Real, just north of Palomar Airport Road; the AT&SF Railroad, which runs parallel to the coastline through its 6.5 mile length in Carlsbad; and motor boats which utilize the Agua Hedionda Lagoon. Noise generation is minimal or limited in the exclusively residential portions of the City, and in rural or undeveloped areas.

City of Carlsbad General Plan

The primary goal of the Noise Element of the Carlsbad General Plan is to achieve and maintain an environment which is free from objectionable, excessive or harmful noise (City of Carlsbad 1994). It establishes goals, objectives, and policies to help mitigate existing and future environmental noise levels from sources within and adjacent to the City, and provides policies and action programs to implement the goals and objectives.

Noise Control Ordinance

The City of Carlsbad does not have a comprehensive noise ordinance. However, Chapter 8.48 limits hours of construction to normal weekday working hours. Specifically,

construction noise is not allowed after sunset any day; before 7:00 a.m. weekdays; before 8:00 a.m. Saturday, Sunday, and on seven holidays. The City enforces the California Penal Code Section 415 when annoying noise occurs. Also, the City has a Noise Guidelines Manual (September 1995) with which projects must be consistent.

4.9.2 Significance Criteria

The following criteria are used to determine the significance of an impact:

- ! Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies;
- ! Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels;
- ! A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- ! A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- ! For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels; or
- ! For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels.

4.9.3 Impact Analysis

Potential noise impacts are commonly divided into two groups; temporary and long-term. Temporary impacts are usually associated with noise generated by construction activities. Long-term impacts are associated with impacts on surrounding land uses generated from operation and maintenance of the project related facilities. The construction noise specifics of the various phases of the project warrant additional analysis by technical noise studies prepared in accordance with the applicable CEQA guidelines.

Short-term acoustic impacts are those associated with construction activities necessary to implement the proposed facilities. Associated noise levels will be higher than the existing ambient noise levels, but would subside once construction is completed. Two types of noise impacts should be considered during the construction phase. First, the transport of workers and equipment to the construction areas will incrementally increase noise levels along the roadways leading to and from the project areas. Second, the noise generated by the actual on-site construction activities will be audible to adjacent sensitive receptors.

The highest noise levels associated with construction typically occur with earth moving equipment which includes excavating machinery (backhoes, bulldozers, excavators, trenchers, front loaders, etc.) and road building equipment (compactors, scrapers, graders, etc.). Noise levels at 50 feet from earth moving equipment typically range from 73 to 96 dBA (Bolt, Beranek, and Newman 1971). Construction equipment noise typically has a drop-off rate of 6 dBA per doubling of distance (*i.e.*, at 100 feet, noise levels associated with the earth moving equipment would be approximately 67 to 90 dBA).

Construction and rehabilitation efforts for the project components would result in noise impacts to various types of sensitive receptors including, residences, businesses, schools, and libraries. The associated construction activities would increase the ambient noise levels above existing conditions, which could be perceived as annoying to sensitive receptors in the area. However, this impact is temporary and would disappear once construction is completed. Provided that all construction activities do not conflict with the Carlsbad Noise Control Ordinance, no significant impacts would result from construction. Construction activities are not anticipated to exceed the noise standards of affected jurisdictions. To help minimize the impacts of construction the City shall provide public noticing for their proposed construction activities, and will appoint a public liaison who will respond to concerns of neighboring residents about noise and other construction disturbance (refer to *Table 2-5*).

The projects within the two Master Plan Updates were evaluated for the potential to generate significant noise that would affect nearby sensitive receptors. Some of the projects (*e.g.*, the new PS proposed with water component 20), while potentially resulting in increases in ambient noise levels, are not located in areas adjacent to sensitive receptors. One project, sewer component 12, involves reducing noise and incorporating odor control measures. Of the projects in the two Master Plan Updates, the following have the potential for significant noise impacts on nearby receptors:

- ! New water reservoir next to existing D-3 Reservoir (water component 27)
- ! New water reservoir adjacent to the existing Maerkle Reservoir (water component 28)
- ! Maerkle Pump Station Capacity Improvements (water component 29)
- ! Calavera PS Upgrades (water component 36)
- ! Lift station upgrades at the Terramar, Villas, and Gateshead Lift Stations (sewer component 7)
- ! Home Plant Lift Station Improvements (sewer component 9)
- ! Agua Hedionda Lift Station Improvements (sewer component 32)
- ! South Agua Hedionda/Kelly Ranch Lift Station (sewer component 34)

New pump or lift stations and expansion or improvement of existing pump or lift stations beyond present plant boundaries should be evaluated in the design stage to assure that sensitive receptors are not significantly affected (that is, above 60 dBA CNEL) and applicable engineering mitigation is required if necessary.

Noise impacts from construction activities would be minimal within industrial and manufacturing districts, as these areas do not contain sensitive receptors and their associated ambient noise levels are generally high. Similarly, project related construction noise would have no impact within Open Space areas, as these areas are located in remote locations and devoid of sensitive receptors. However, the associated noise could potentially affect wildlife species which utilize the affected Open Space areas for habitat or migration. Construction-related noise impacts to wildlife are discussed in *Section 4.3, Biological Resources*. No significant noise related impacts would occur within industrial, manufacturing or open space areas as a result of short-term construction activities.

Operation of the project facilities would not create a significant impact on any sensitive receptors with regard to noise. Once constructed, the pipeline segments would not result in any noise impacts as the fluid flow of water or sewage within an underground pipeline would not be audible. Noise levels are not anticipated to exceed the limits

expressed in the City's Noise Guidelines Manual. Occasional maintenance and emergency repair activities will generate some additional noise; however, these activities are sporadic in nature and do not occur at the same location for long periods of time.

Typically, pump stations and lift stations of the types proposed in the Master Plan Updates do not produce high levels of operational noise. PS facilities are most likely to produce perceptible noise off the facility site, with the source of noise being the motors used to power the pumps. In normal operation, the pumps are powered by electric motors, and pumping stations are typically housed in masonry enclosures, which are effective in attenuating noise. The Districts also attempt to assure that an adequate area around their pumping stations and other facilities buffers the facilities from nearby sensitive receptors, such as residences to ensure that noise does not exceed the Noise Guidelines limits. In some cases, the City provides additional noise mitigation in those facilities. Also, pressure-reducing stations do not typically produce any noticeable noise outside of the structure. Therefore, no long-term operational noise impacts are anticipated to occur as a result of the project.

The project's potential to result in excessive groundborne vibration to sensitive receptors would need to be assessed at the individual project-level review. Groundborne vibration can occur in areas adjacent to pump stations. In addition, some facilities may require blasting activities during construction, which may also result in vibration effects.

Although a number of the proposed project components would be located within the McClellan-Palomar Airport Land Use Plan, the project would not expose people residing or working in the project area to excessive noise levels. The construction of the facilities in the airport vicinity would be short-term and would not contribute to a long-term noise effect. Additional information regarding the Airport Land Use Plan is described in *Section 4.6*.

4.9.4 Mitigation Measures

The projects designated for a noise study in *Tables S-1* and *S-2* shall be evaluated in the design and environmental Initial Study phases to determine if potential noise impacts in excess of City Noise Control Ordinance limits or the City's Noise Guidelines Manual would result. If such a potential exists, a noise study shall be conducted including recommendations for mitigation. Mitigation shall be designed to assure that noise produced by operation of the facility shall not cause the limits in the Noise Control Ordinance or Noise Guidelines Manual to be exceeded, and any such mitigation shall be required as part of the project.

Also, a site-specific acoustical analysis will be required for any project located within 500 feet of any residential dwellings, which will ensure compliance with the City's construction noise and outdoor noise standards. It is assumed that potentially significant impacts will be mitigated by future mitigation measures developed at the project level of analysis.

4.9.5 Residual Impact After Mitigation

Impacts would be less than significant.

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4.10 TRANSPORTATION/TRAFFIC

The study area for this analysis includes roadways directly affected by the proposed project and is based on existing and planned roadway classifications obtained from the City of Carlsbad. The following analysis provides information on the existing area roadways, and identifies current lane configurations, average daily traffic (ADT) volume, roadway capacity, and level of service (LOS). Roadway capacity has been defined as the maximum number of vehicles that can pass over a roadway during a given period of time under prevailing roadway and traffic conditions. The maximum capacity is determined from roadway factors (such as right-of-way widths, lateral clearance, shoulders, surface conditions, alignment and grades) as well as traffic factors (such as vehicle composition, distribution by lane, peaking characteristics and traffic control devices, intersections, etc.). Capacity is usually given as the hourly service volume at the upper limit of LOS, which indicates the maximum number of vehicles that could be expected to travel a section of roadway in a day.

4.10.1 Existing Conditions

The City of Carlsbad's transportation system is generally meandering, due to the presence of natural topographic constraints (*e.g.*, steep hills, lagoons). Portions of the I-5 freeway and SR-78 bring regional traffic into and through the City. Several of the City's existing major arterials also carry through traffic as well as local traffic. The City of Carlsbad contains three major arterial roads including El Camino Real which runs north and south through the center of the City, Palomar Airport Road which runs east/west through the center of the City, and Rancho Santa Fe Road which runs along the southern and easterly boundary of the City.

Most City streets are paved with curbs and gutters, and water and sewer pipelines are usually located in public street rights-of-way for easy access and maintenance. Private roadways and easements are also sometimes used to provide access to the various water and sewer facilities. Where construction occurs in public right-of-way, the City has standardized procedures for regulating traffic during construction projects. The procedures are based on the accepted engineering principles and practices cited in the Caltrans *Traffic Control Manual* for traffic safety and control in construction work zones. These procedures include traffic schedules, signage, lighting, lane configurations, and lane markers.

4.10.2 Significance Criteria

A project is considered to have a significant impact on the operation of a roadway segment or intersection when one of the following occurs:

- ! Cause an increase in traffic, which is substantial in relation to the existing traffic load and capacity of the street system (*i.e.*, result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections);
- ! Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways;
- ! Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- ! Substantially increase hazards due to a design feature (*e.g.*, sharp curves or dangerous intersections) or incompatible uses (*e.g.*, farm equipment);
- ! Result in inadequate emergency access;
- ! Result in insufficient parking capacity;
- ! Conflict with adopted policies, plans, or programs supporting alternative transportation (*e.g.*, bus turn-outs, bicycle racks).

4.10.3 Impact Analysis

Traffic Generation

Most of the proposed facilities, once installed, would require infrequent site visits by maintenance staff. The project would predominantly result in short-term traffic effects during construction of the various project components. The short-term effects would require additional review once detailed project construction plans become available.

Impacts were generally evaluated for portions of the proposed project that would require construction within existing streets. The operational phase of the proposed project would generate minimal traffic required for routine maintenance and emergency repair. Some increase in traffic would result from maintenance activities in the form of

employee trips and the delivery of supplies, but these would be overall minor activities when compared to the existing circulation system. The proposed project would not result in long-term impacts to traffic.

Traffic will be generated during project construction. The primary sources of construction traffic would be workers, delivery of materials and removal of excess material. Typically for pipeline projects, approximately 8 to 12 construction workers are expected on a daily basis for each segment of pipe being constructed and/or rehabilitated, and an average of 4 trucks per day to and from the site is anticipated for delivery and removal of materials. Project construction within study area roadways would consist of excavation, pipeline construction, backfilling and repaving. A typical pipeline construction area is approximately 30 feet wide and would progress at a rate of approximately 200 feet per day. Multiple project components may be constructed simultaneously.

Construction of all project components, creation of staging and storage areas, and installation of facilities such as PRS components will take place, in part, in existing public street rights-of-way, along with the use of construction equipment. Potential impacts include disruption of traffic from lane closures, detours, increased truck and other construction-related traffic, and disruption of access to local businesses and residences in some cases. These types of impacts may affect local circulation during the short-term course of construction activities.

Short-term construction traffic would require implementation of a traffic control plan (TCP). The project TCPs would need to be developed in accordance with City of Carlsbad and Caltrans traffic control guidelines and would need to specifically address construction traffic, traffic safety measures, and use of signage and flag personnel where necessary (refer to *Section 4.10.4*). The construction traffic-related specifics of the various phases of the project warrant additional analysis by technical traffic survey/studies prepared in accordance with the applicable CEQA guidelines.

Overall, short-term traffic impacts are considered potentially significant. This conclusion would be more fully explored by the project-specific technical traffic studies prepared at later design phases for each project, as necessary. Refer to *Section 4.10.4* below for a description of traffic mitigation measures.

Air Traffic Patterns

The project does not involve any changes in air traffic patterns, and does not involve

construction of facilities that would have the potential to impact air traffic patterns. Please refer to *Section 4.6, Hazards and Hazardous Materials* for additional information on air traffic safety. Impacts would be less than significant.

Hazards

Construction activities would require lane closures which could result in short-term impacts to traffic patterns and result in temporary traffic congestion and potential traffic hazards. Construction of the various components would also cause temporary disruption of access to residences and businesses along the construction route. Consequently, portions of the affected roadway links may require detours or flagger assistance to maintain acceptable operation of the roadways, and access to all properties. Closing or altering access to individual properties, lane closures, and subjecting any portion of existing roadways to notable increases in construction traffic are considered potentially significant, and mitigation is required.

Construction of sewer component 30 (the Buena Vista Lift Station forcemain) would involve encroachment within the right-of-way of I-5. Altering access or interfering with a public facility such as Caltrans' interstate freeway system is considered a potentially significant impact; therefore, mitigation is required.

Emergency Access

The project's effects on emergency access and emergency response plans is analyzed in *Section 4.6.3*; the project would not result in inadequate emergency access, and impacts would be less than significant.

Parking Effects

Construction of the individual projects would result in some short-term parking needs by workers at the sites. No portion of the projects would result in long-term parking needs by maintenance crews or others. Because relatively few vehicles are necessary, and because most parking needs would be short-term during construction only, impacts to existing parking capacity are not anticipated to be significant.

Consistency with Other Plans and Policies Supporting Alternative Transportation

SANDAG's Congestion Management Plan (CMP) was adopted on November 11, 1991,

and is intended to directly link land use, transportation and air quality concerns through level of service performance. Local agencies are required by statute to conform to the CMP. The CMP requires an enhanced CEQA review for all large projects that are expected to generate more than 2,400 ADT or more than 200 weekday peak hour trips. Since the project is calculated to generate less than these amounts, this level of review is not required of the proposed project and the project is consistent with the goals of the CMP, and impacts would be less than significant.

Similarly, SANDAG has produced a 2020 Regional Transportation Plan (RTP) in April 2000 that identifies those projects needed to improve transportation significantly over the next 20 years. The RTP sets four key objectives; specifically, average time to get to work (24 minutes or less), number of miles of deficient segments in the freeway system (29 miles or less), number of transit riders (minimum 400,000 trips per day), and increase in transportation revenues (65 percent increase). The RTP contains plans and policies to improve mobility in the region by recommending new facilities and the expansion of transit services, programs to manage travel demand, and changes to local land use policies. The proposed project, although temporarily disrupting traffic flow on regional roadways during construction, would not conflict with overall goals of the RTP, and impacts would be less than significant.

4.10.4 Mitigation Measures

Tables S-1 and S-2 identify the project components that would require the following mitigation measures.

1. The Districts will obtain an encroachment permit from respective local and state authorities, as required prior to the commencement of the construction phase within the affected right-of-ways. This process will include submittal of project plans, review of plans by the respective authorities, possible revisions of the plans relative to concerns brought forth by the issuing agency and issuance of the respective permit. Potential permitting agencies include Caltrans, North County Transit District (NCTD), Cities, and the County of San Diego. All roadway features (signs, pavement, delineation, roadway surface) and structures within the State right-of-way shall be protected, maintained in a temporary condition, or restored.
2. A TCP shall be prepared prior to construction and implemented for all affected roadways. The TCP shall be prepared in accordance with Caltrans Manual of Traffic Controls for Construction and Maintenance Work Zones [1996 (Revision

2) edition], and with the City of Carlsbad's traffic control guidelines. It will be prepared to ensure that access will be maintained to individual properties and businesses, and that emergency access will not be restricted. Additionally, the TCP will ensure that congestion and delay of traffic resulting from project construction are not substantially increased and will be of a short-term nature.

The TCP will show all signage, striping, delineate detours, flagging operations, and any other procedures which will be used during construction to guide motorists safely through the construction zone and allow for a minimum of one lane of travel. The TCP will also include provisions for coordinating with local emergency service providers regarding construction times and locations of lane closures as well as specifications for bicycle lane safety.

The limits of construction work area(s) and suggested alternate traffic routes for through traffic will be published in a local newspaper periodically throughout the construction period. In addition, the construction contractor or the Districts shall provide not less than a two-week written notice prior to the start of construction by mailing to owners/occupants along streets to be impacted during construction.

During construction, the Districts shall ensure that continuous, unobstructed, safe and adequate pedestrian and vehicular access to and from public facilities such as public utility stations and community centers will be provided, and to commercial/ industrial establishments. If normal access to these facilities is blocked by construction alternative access shall be provided. Should this occur, the Districts shall coordinate with the businesses or each facility's administrators in preparing a plan for alternative access.

During construction, the Districts shall maintain continuous vehicular and pedestrian access to residential driveways from the public street to the private property line, except where necessary construction precludes such continuous access for reasonable periods of time. For example, when a given pipeline segment is initially being excavated, access to individual driveways may be closed during the course of a workday. Access shall be reestablished at the end of the workday. If a driveway needs to be closed or interfered with as described above, the construction contractor shall notify the owner or occupant of the closure of the driveway at least five working days prior to the closure.

Methods to maintain safe vehicular and pedestrian access include the installation

of temporary bridge or steel plates to cross over unfilled excavations. Whenever sidewalks or roadways are removed for construction, the contractor shall place temporary sidewalks or roadways promptly after backfilling until the final restoration has been made.

The TCP shall include provisions to ensure that the construction contractor's work in any public street does not interfere unnecessarily with the work of other agencies vehicles, such as emergency service providers, mail delivery, school buses, waste services, or transit vehicles.

3. During project design, the Districts shall coordinate with each jurisdiction, as well as its own transit division which may be affected by the project to determine the exact limits of project construction. All work proposed within the State right-of-way shall be dimensioned in metric units. The coordination effort shall be followed by specific measures to avoid conflicts resulting from other construction projects occurring within the direct vicinity of the project and within the same time period.

Coordination with the following entities shall occur in conjunction with the proposed project:

- ! NCTD
- ! Caltrans
- ! Carlsbad Traffic Engineering
- ! Oceanside Traffic Engineering
- ! San Marcos Traffic Engineering

4.10.5 Residual Impact after Mitigation

With implementation of the identified mitigation measures in *Section 4.10.4*, short-term construction impacts would be reduced to less than significant. A list of projects requiring preparation of a TCP is included in *Tables S-1 and S-2*.

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